THE VETERINARY JOURNAL

A Monthly Review of Veterinary Science

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JANUARY, 1926.

Editorials

A SPECIAL CANINE AND FELINE NUMBER.

In presenting a special Canine and Feline Number of the Veterinary Journal to our readers we feel that the vast importance of this branch of veterinary medicine, and the great progress which has been made in the clinical side of this section of our work, more than justifies the temporary omission of allusions to the larger species of our patients. The response to our request in the last issue was so generous that the publication of some very interesting material has had to be postponed owing to want of space, and our Editorial apology is tendered to those whose articles have had to be held over. These, however, will appear in the February number.

The dog and the cat now occupy almost as essential and important a place in the household as do the human members of the family, and when ill they are almost equally looked after. Within the memory of the present generation the veterinary surgeon treated these patients very contemptuously and casually, often only as a favour, and frequently without expecting to draw any fee for his services; whereas nowadays canine practice is in many districts of much more lucrative value, and certainly much more interesting, than that of the larger animals.

The space at our disposal is limited, but our readers will find that the articles cover a good deal of ground and have sufficient variety to give rise to much food for thought. Even if each subscriber only obtains one fresh idea or suggestion from the perusal of its columns the object aimed at in gathering together material of one kind in one cover will have been attained.

XUM

DISTEMPER RESEARCH FUND.

It will be pleasing news to our readers to know that the Distemper Fund which was founded at the outset by the collaboration of *The Field* and the Veterinary Journal, and which has been maintained so ably and actively by the former paper, is in a sufficiently satisfactory financial position to enable the promoters of the Fund to state definitely that the research will be continued for at least another year, or two if necessary. The total amount which has been collected up to the present time is more than £17,000, of which the support from America alone has been, up to the present, nearly £3,500. This sum, as those readers who are subscribers will already know, is handed over, as required, to the Medical Research Council, whose staff consists not only of medical men but workers in veterinary and other branches of science. The particular investigators to whom the bacteriological research has been entrusted include Drs. Laidlaw and Gye (the latter of whose recent discoveries in connection with cancer have made him justly famous), whilst the clinical and practical side, in regard to the veterinary details, is under the supervision of our colleague Mr. Dunkin, M.R.C.V.S.

The research workers have for some months now been particularly studying this disease in the ferret, and they have confirmed by laboratory observations the opinion which, although clinically observed before, had not been proved definitely certain, that distemper is communicable from the dog to the ferret and *vicê versâ*. This fact has enabled them to make considerably more progress than they would have been able to make had they confined their attention to the dog alone, as for various reasons the ferret is very adaptable for observational work on this disease. The utilisation of these animals has filled in a gap of time whilst waiting for the establishment of a stock of healthy puppies of the third generation which have not had any opportunity of contact with infection nor could be surmised to be " carriers."

Complicated research work of this kind always involves great patience and takes considerable time, and the investigators of the Medical Research Council knew, when they accepted the responsibility entrusted to them, that the chase after a preventative (or a curative) measure against such an elusive germ or virus as that which causes distemper would be a stern one and probably a long one, so that the subscribers and supporters of the " Field Distemper Fund " must not be too critical because only the threshold has been reached.

A fully detailed report will shortly be issued to all subscribers, and some idea of the satisfactory nature of the results attained during

the past six months may be gathered from the fact that the following resolution was passed unanimously at a recent meeting of the Council : " That in view of the satisfactory report of the Council's Finance Committee, the Field Distemper Council hereby decides to continue its efforts to accept any donations and subscriptions which may be offered after February 1, 1926, and to support the Council's Technical Scientific Committee with all such sums as may be at the Council's disposal, until their investigations into the causes and cure of distemper have reached a satisfactory issue." Thus at last, by the enthusiastic combination of the professional and the lay Press, the dog-owner and the general public, we have the necessary pecuniary means for this much-needed research, and the scientific workers are able to carry out their observations on a scale which our forefathers could only dream about. That they have the best of the New Year's wishes from our readers for their complete success is a foregone conclusion, and their further reports will be looked forward to with great expectancy.

VACCINATION AGAINST RABIES.

In England we are in the fortunate position of being surrounded by a sufficient width of water to enable the introduction of rabies into this country to be preventable, and so long as the Veterinary Department of the Ministry of Agriculture has the loyal backing of its colleagues in the veterinary profession and proper authority for making and administering the laws, so long shall we remain a country which is in the happy position of keeping out at least one of the most horrible diseases from which man and animals can suffer. In other countries which are not so fortunately placed the subject of rabies, particularly in dogs, is one which gives very serious cause for anxiety, and the introduction of preventive vaccine against rabies is a matter for very serious consideration.

It was in 1921 in Japan that the prophylactic immunisation of dogs against rabies was first seriously attempted, the observers being Messrs. Umeno and Doi, and they reported only two cases of rabies in over 30,000 dogs which had been vaccinated, whilst in the uncontrolled animals the disease was very prevalent. Hata, another Japanese observer, summarised the results of this anti-rabic vaccine in Japan by stating that only forty-one dogs of 104,629 which had been vaccinated developed rabies, whilst 1,699 of the unvaccinated group of animals (which are only about one-third of the vaccinated number) contracted the disease. Kendo used a vaccine of his own in Japan on 20,176 dogs, of which only four, which had been exposed

previous to treatment, developed rabies, and in each instance the disease occurred within a week after the vaccination—that is, before there had been a chance to obtain immunity. No further cases were noted within the year following the treatment, although many cases occurred in the unvaccinated dogs. In America numerous observers, including Doctors Eichhorn and Lyon, of the Bureau of Animal Industry, have recorded observations in which large numbers of dogs have been inoculated in various parts of the United States with anti-rabic vaccine. For example, Dr. Meader of the Detroit (Michigan Department of Health) reports that from May 1, 1924, to May 27, 1925, there were licensed in the city of Detroit 12,918 vaccinated dogs, whilst 34,164 were left unvaccinated. Of the 12,918 vaccinated dogs only six developed rabies, whilst 200 of the unvaccinated ones contracted the disease. In other words, the incidence of rabies in the unvaccinated dogs was fourteen times as great as in the vaccinated dogs.*

Portugal has recently passed a law by which it is made compulsory for all dogs to be vaccinated against this disease, and it is possible that other countries may also follow suit.

It is a subject of more than passing interest to us in the veterinary profession, and if it could be proved beyond any shadow of doubt that universal vaccination is a safe preventative, there is no doubt that this method of treatment will become an international one. It is a subject which is certain to be brought up for discussion before the next International Veterinary Congress.

THE VALUE OF RADIOGRAPHY IN CANINE PRACTICE.

It is now so long ago, comparatively speaking, since Professor Röntgen introduced the X-rays into the world of science that it is almost ancient history. The first announcement in this country appeared in the *Standard* newspaper on January 6, 1896, and on the 7th Mr. Campbell Swinton took what were probably the first X-ray photographs in this country, the exposure given being about twenty minutes. Had it remained at this length of time for the taking of a skiagraph, medical science would scarcely have been benefited, but one knows that to-day the usual apparatus in use for surgical purposes gives the result required in the fraction of a second.

For Animal Radiography this reduction in the time of exposure

* These statistics are quoted from a very interesting paper by Dr. A. S. Schlingman, of the Medical Research Laboratories (Parke, Davis & Co., Detroit, Michigan, U.S.A.), presented at the 62nd Annual Meeting of the American Veterinary Medical Association at Portland, Oregon, in July 1925.

is appreciated in the use of the apparatus for the discovery of internal injuries, foreign bodies, etc., quite as much as in the human being, and the Röntgen rays with all their improvements are now as much at the service of the modern veterinary surgeon as to that of his human *confrère*.

For smaller animals such as the dog and cat, it is a matter of much greater ease and convenience to apply the present-day X-ray knowledge than it is to the larger species, although to these too many of the difficulties have of late years been done away with.

Foreign bodies, especially those of metallic origin which our canine patients are so fond of swallowing at every opportunity, are readily demonstrated, and the radiographs given in this month's issue will illustrate, better than any amount of discussion, some of the practical uses (as an aid to diagnosis) in which the combination of the veterinary practitioner and the expert radiographer can be made to their mutual advantage as well as to the benefit of their patient.

General Articles

RABIES IN ANIMALS.

By Major-General Sir JOHN MOORE, K.C.M.G., C.B., F.R.C.V.S.,
Hampstead, N.W.

Present-day veterinarians in Great Britain and Ireland have now no opportunity of seeing rabies, for the reason that the disease was stamped out in these countries in 1892. To maintain touch, therefore, the experiences of the older members of the profession have to be drawn on, with the exception of those of us who serve in India, where it not only prevails, but from all accounts would appear to be on the increase.

During a four and a half years' assistantship with Mr. Tedbar Hopkin of Manchester, from 1885 to 1889, I encountered a fair number of cases in dogs, and it was part of an assistant's duty to administer the *coup de grâce* to the affected. As naturally may be supposed, so hazardous an undertaking required the exercise of particular care, even duly allowing for the confidence incidental to youthful vigour. This was usually and satisfactorily effected by saturating a pledget of cotton wool with Scheele's prussic acid, attaching it to the end of a stick, and presenting it to the dog through (or over) the loose box door or kennel; the dog flew at it, grabbed it with its mouth, and became sufficiently narcotised to admit of more prussic acid being immediately poured down its throat. I call to mind one particular

case which is worth recording. The animal, a fox terrier dog, belonging to a personal friend, was brought by him for me to see. The dog was led on a chain through the streets, appeared normal, allowed me to stroke him (a dangerous proceeding under the circumstances), and the history recounted by my friend could not have been more typical of commencing rabies than if he had read the signs of the disease from a text-book. He described how peculiar the dog had been at times for the past few days, hiding itself under the sofa, tearing cushions, snapping at an imaginary fly, and that it had bitten his young brother in the mouth. " Well," said I, " you have described the symptoms of rabies most perfectly, and you had better leave the dog with me. I will put him in the upstairs end loose box and watch him for a few days." This was done. Two days afterwards I met our local baker coming down the stairs from the line of loose boxes, his left hand bleeding from a wound at the base of the thumb. I inquired where he had been, and he replied, " I have been into the end box to see a nice little fox terrier dog, and it has bitten me ; is there anything the matter with it ? " I, of course, did not inform him of my suspicions, but I ensured that he sucked the wound fairly well (it was bleeding arterial blood profusedly), and I then asked him to come into the surgery to have it dressed. I took a large blanket pin, dipped the head of it into strong glacial carbolic acid and pressed it down to the bottom of the wound. I completed the cauterisation process by dropping a few drops of the carbolic acid carefully into the wound. Two days afterwards the dog was found dead in the box. The plaster of the wall near to where he was attached was severely bitten ; he died with a bunch of straw in his mouth, and post-mortem examination revealed amongst other extraneous things in his stomach a portion of a skate strap and buckle. I informed the father of the boy said to have been bitten, and though the evidence showed that the injury was slight, amounting to an abrasion on the gum, the boy was taken to Paris for anti-rabic treatment, and no untoward symptoms supervened. The baker was never informed that he had been bitten by a rabid dog, and though the heroic treatment to which I subjected him proved very severe, he lived for years afterwards and certainly did not die from rabies.

As regards rabies in India, I have before me the Annual Reports of the Civil Veterinary Departments of the United Provinces and the Presidency of Bombay. It will be readily understood that in a country where measures of control of contagious and specific disease are grossly imperfect, official reports of occurrence do not correctly represent prevalence. The recorded number of 193 cases in the United Provinces for the year 1924–25 must therefore be looked on as serious. Eighty of these occurred in the hill station of Naini Tal, which

is not only significant of a greater prevalence in hill stations where a greater relative number of dogs exist, but of a better attempt on the part of local bodies in recording and reporting. The remarks of the Veterinary Adviser of the Province will be interesting to readers as showing the apathy of the Government in respect to the disease. The report runs :—

" From time to time the question of dealing with rabies in dogs has been put forward, and recommendations made thereon to the Government on the suggestion of the first sectional meeting of veterinary officers held at Lahore on March 24, 1919, but up to the present it is regretted that little or no action has been taken, with the result that the disease is rapidly on the increase. This is noticeable chiefly amongst ownerless and pariah dogs which are allowed to roam, more especially at such places as railway stations and bazaars. Last year in one district alone no fewer than eighty suspected cases were dealt with, resulting in many people being bitten, and having to proceed to the Pasteur Institute, Kasauli, for treatment."

As regards the Bombay Presidency, the Superintendent Civil Veterinary Department in his Annual Report for the year 1924–25 remarks : " Sixty-seven cases of rabies were dealt with by veterinary assistant surgeons as against ninety last year. The brains of thirty dogs suspected to have died from this disease were sent to the Bacteriological Laboratory for examination."

When I was Deputy Principal Veterinary Officer in India from 1907 to 1910 a serious attempt was made in the Municipality of Simla to control the disease on the representation of the Army Authorities, and the idea was that if it proved a success in Simla, like measures could be adopted in other places and districts. So far as I remember, the propinquity of a mad dog to His Excellency the Viceroy, and two other cases in the station necessitating persons undergoing anti-rabic treatment, gave a zest to trial measures of control, but it would appear from Civil Veterinary Reports that matters have not progressed. On one occasion in Simla, while seeing a suspected dog belonging to a neighbour, the animal, led out from the house on a chain, flew at me, a stranger, and nipped a small piece out of my trouser-leg. Placed in an outhouse for observation, it died on the third day after, its feeding-tin being crumpled and holed with biting and the woodwork of the door of the outhouse much gnawed. So frequent was dog-bite amongst soldiers in India that a special Army Instruction was published stating that all dogs which had bitten soldiers must be taken to station veterinary hospitals, be examined by a veterinary officer, and kept under observation for a period of ten days. It was in consequence of this Army Instruction that the wife of Captain Q. (of the Army Veterinary

Corps who died from rabies) was able to get a pension on a higher scale. Ordinarily his length of service did not entitle his widow to a pension at all, and dogs are not military animals, but the Army Instruction mentioned brought the inspection of dogs under his official duty, and it was also ruled to be duty of a dangerous nature, carrying a higher scale of pension to a widow. Infection in this instance was due to the officer having a slight wound on his lip (a crack). He examined a friend's dog at the station club one evening, and presumably did not take the precaution to wash his hands in a disinfectant solution. He had a habit of stroking his upper lip and moustache, hence the infection. He was a fine officer, very popular, and his loss was greatly deplored. He underwent the ordinary anti-rabic treatment at Kasauli, but foolishly delayed going there until he had completed his tour of duty. The Pasteur Institute for Northern India is located at that place. Had he realised immediately that he had become infected and acted upon this knowledge, he would probably have been alive now. Another Institute for Southern India is at Conoor.

Though the subject of rabies in this issue of the JOURNAL is only meant to be canine, I may mention that I have seen it in a horse in India, the subject being an artillery horse at Meerut. The symptoms were very distressful, a perpetual motion of violent biting of the off-hind pastern. Needless to say, the animal was destroyed as soon as possible. I remember also a report being made to me of three rabid camels of a camel corps in Sind. Rabies met with in these animals is of a furious kind, and one can hardly imagine a more difficult subject. During my appointment of Principal Veterinary Officer in the Eastern Command, Naini Tal, India, a report was sent to Command Headquarters from the Terai that two elephants were found to be suffering from rabies, and had been destroyed. Definite proof of having been bitten was given as evidence. I ascertained that they were affected in the " dumb " form.

A CURATIVE TREATMENT FOR FOLLICULAR MANGE.

BY FRANK CHAMBERS, O.B.E., F.R.C.V.S.,
Wolverhampton.

IT would appear that follicular mange is very much on the increase, especially in the town areas. It may be that our method of diagnosis is more accurate, and that many of the cases that have been in the

past called eczema are now found to be the squamous variety of follicular (or demodectic) mange. The treatment of this variety of mange has always been far from satisfactory, and although the results obtained by the method I shall describe have given wonderful results in the treatment of the squamous variety, no attempt has been made to cure the cases of the pustular form. Strangely enough, only three cases of the latter variety have been seen during the past two years. The first fourteen cases that were treated are described below in detail. They were all of the squamous variety, and a positive diagnosis was arrived at after the microscopical examination of deep scrapings from the affected area or areas. The method of examination was to put the scraping in a test-tube, add 5 or 10 c.c. liq. potassæ, and boil for a few minutes. After centrifugilising, the supernatant fluid is pipetted off, and the deposit examined. As a general rule the parasites are easily found. Those cases which, although they presented typical pictures clinically of the disease, have not been included if the causal organism was not found. If the areas are not too large or numerous, they are rubbed with a 1 in 10 biniodide of mercury ointment. This produces a mild blistering effect. In a few days the scales are removed, and the following solution is applied thrice daily with a stiff brush :—

℞ Mercurophen . . . . . gr. 2.
Spirits Vini. Meth.
Aqua aa . . . . . ℥ iv.
M. ft. Lot.

Mercurophen is a sodium-oxymercury-ortho-phenolate, containing about 50 per cent. of mercury. It appears in the form of a brick-red powder, which is freely soluble in water. The solution is odourless and deep amber-yellow in colour, with only a very slight staining effect. It is sold in 1-grain tablets by H. K. Mulford Company of Philadelphia, and most of the big drug houses in this country stock it. The treatment as a general rule takes about three weeks to effect a cure.

Case 1.—Terrier, five years old. First seen August 26, 1924. Several patches about 4 inches in diameter on the sides and back of neck showed the characteristic pigmented appearance. No scratching, but the peculiar wave-like shaking of the body was well shown. September 2, owner reports that the dog has stopped shaking. September 30, quite cured. July 1925, no reappearance of the disease.

Case 2.—Three-year-old fox terrier with a patch on the left shoulder as large as a two-shilling piece. First seen on the 24th of September, 1924. On the 20th of November the case was cured, and the hair

had grown over the affected area. Sixteen ounces of the solution was required to cure this case.

Case 3.—Yorkshire terrier, eight years old. Most of the body affected. Constant shaking and a most offensive mangy smell. This case took two months to cure. I saw the dog some ten months afterwards for bronchial trouble, and he then had a wonderful coat.

Case 4.—Fox terrier, eighteen months old. The front of both fore legs was affected. This case was treated for one month and great progress was made, but unfortunately the dog contracted distemper, and was eventually destroyed on account of acute chorea.

Case 5.—Irish terrier, four years old. First seen on the 27th of August, 1924, with patches on the head, neck, and skin over chest. Parasites were especially numerous. A second bottle of the lotion was given on the 2nd of September, the owner stating that dog was much better. On the 14th of September the dog was apparently cured.

Case 6.—Pedigree fox terrier, four months old. The owner had noticed a bare patch on the knee soon after purchase. On the 27th of August, 1924, mercurophen solution was applied. September 3rd, patch not so red and is becoming scaly. Dog still shakes. September 18th, hair growing in places. Scraping showed no parasites, but dog still shakes. October 10th, patch over elbow and knee quite cured. October 15th, two fresh patches appeared on the hind legs, and as the owner was not willing to go on with the treatment the dog was destroyed.

Case 7.—Pekingese, five months old. On the 1st of October, 1924, there was a patch between the knee and paw of left leg. On the 29th, the patient has stopped shaking but occasionally bites at the affected area. No parasites seen in second scraping. December 2nd, quite cured. When seen again on the 8th of August, 1925, there was no recurrence.

Case 8.—Three-year-old Alsatian bitch. Affected on the face between the eyes and on the left lower jaw. Parasites very plentiful. Blistered the face and lower jaw. Some of the blister was licked off and caused a certain amount of stomatitis. First treated on the 24th of April, 1925, and discharged cured on the 3rd of June. Seen again on the 24th of August, 1925 : no recurrence.

Case 9.—Sealyham, two years old. Seen December 10th, 1924, when there was a patch on back and the animal shaked itself a lot. On the 19th the disease was spreading in spite of treatment. The dressing was applied double strength, and on the 1st of January, 1925, the dog was practically cured, a microscopical examination of a scraping proving negative. March 10th, owner states that after being cured for three months disease has reappeared. Treatment

was recommenced and the terrier was cured in three weeks. Up to the time of writing disease has not reappeared.

Case 10.—Fox terrier bitch, ten months old, with a bare patch on the front of the head between the eyes. January 13th, 1925, as the area was small it was blistered. Mercurophen solution applied twice daily afterwards, and the area was blistered again on the 20th of January. On the 29th of January the hair was commencing to grow, but microscopical examination of a scraping showed a few parasites. July 4th, 1925, scraping negative. This animal has remained cured.

Case 11.—Fox terrier. Seen December 19th, 1924, when it had a patch over the right eye and parasites were very plentiful. Blistered, and afterwards applied mercurophen lotion twice daily. On the 24th of December the area was blistered again. On the 8th of January a scraping was negative, but hair then did not grow. February 7th, 1925, a scraping was negative and the hair was growing well. This patient was discharged cured seven days later.

Case 12.—Fox terrier, four years old. January 12th, 1925, a large moist area was present over the side of the face and the hair was matted with pus. At first I thought it was a case of moist eczema. After washing and cleaning up the patch, a scraping was taken, and the *Demodex folliculorum* were literally present in thousands. As this really came under the variety-pustular, I wanted to destroy the dog, but the owner desired treatment. As at the end of a month a scraping still revealed parasites the dog was destroyed.

Case 13.—Pekingese bitch, six months old. February 18th, 1925, there were large denuded areas over the neck and left side. The dog shakes, but does not scratch. March 14th, no shaking, the hair was growing and scraping negative. April 10th, cured. No biniodide ointment was used in this case.

Case 14.—Alsatian puppy, three months old. Area on face between eyes and forehead. Blistered. November 18th, 1925, completely cured and hair has grown well.

I think that the combination of the blistering and the subsequent treatment with the mercurophen solution gives the best results. I have tried the blistering alone, but it does not answer. In conclusion I feel that I have to thank Professor Hobday for suggesting the use of mercurophen to me in the first place.*

* This treatment was first tried in the human subject by Professor Schomberg, M.D., of the University of Philadelphia, U S.A., and was suggested to me as worthy of trial for follicular mange in the dog by Dr. Graham Little, M.D., M.P.—THE EDITOR.

ON THE NATURE OF THE NASAL GRANULOMA IN CATS.*

By TOM HARE, M.B., Ch.B., B.V.Sc., M.R.C.V.S.,
The University of Liverpool.

In 1904 Towne (4) described the clinical picture of a " malignant tumour " on the nose of a female cat, aged four years. The patient's owner stated that a small swelling appeared on the outside of the nostril about thirteen months previous to the cat's destruction. This swelling increased gradually to the size of a filbert-nut at the time professional advice was sought. The animal was reported to have had no previous illness. In 1913, Guy Sutton (3) gave a brief record of a " tumourous swelling " on the nose of a male cat, aged four years. The swelling was first observed six months previous to examination. The tumour, which was thought to be the result of a rat-bite, grew slowly and regularly. According to Hobday (2) tumours on the outside of the nose of cats are " not common, but they are occasionally met with."

Recently the author examined a case of a nasal tumour in a male cat aged four years.

Clinical History.—Previous to the onset of the present complaint the patient, which lived in a city office, had not been known to suffer any ill-health.

The owner stated that during the second week in March he observed a slight swelling in the cat's nose, which he thought was due to a rat-bite. The swelling increased very gradually, but the animal's appetite and general health remained unaffected.

On April 15th the author was called in consultation regarding operative interference by Mr. F. S. Warburton, M.R.C.V.S., of Liverpool. The patient was well nourished and readily responded to petting. There was obvious inspiratory and expiratory obstruction, but no marked dyspnœa at rest, and no evidence of mouth-breathing. On account of this nasal obstruction the animal's " purr " was of a higher pitch than normal.

The external nares were involved in a bilateral even swelling, which was sharply demarcated not only from the eyelids, cheeks and forehead, but also from the cartilaginous alæ nasi in front. (*Vide* Figs. 1 and 2.) Of almost uniformly firm fleshy consistency, the swelling was covered on its smooth outer surface by a freely movable and apparently normal skin. There was no evidence of old or recent injury to the skin of the part. Throughout their extent the nasal bones could be palpated beneath the relatively thin fleshy swelling.

* From the Thompson Yates Laboratories, The University of Liverpool.

There was no sign of fluctuation, increased heat, or tenderness, and the patient appeared indifferent to palpation of the whole swelling. Unfortunately the animal resisted examination of the nasal chamber by means of a speculum, but as far as it was possible to determine there was no evidence of fluid or dried exudate in the anterior part of the chamber. The owner had never observed any " running at the nose."

Extending inwards over the cornea from the upper, outer, and

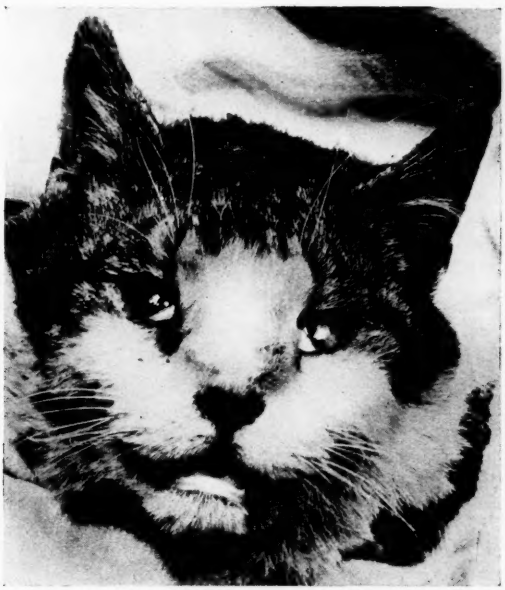

FIG. 1.—Anterior aspect of the patient's head showing the bilateral distribution of the tumour of the external nares. The edge of the limbus encroaching upon the centre of the cornea can be seen in the left eye.

lower arcs of the corneoscleral junction of the left eyeball was a pinkish opaque limbus, revealing under the magnifying glass a plentiful vascular supply, also an uneven and rather granular external surface, though its covering of bulbous conjunctiva remained intact. The inner advancing edge of this fleshy patch was sharply defined as a clean cut, though irregular boundary, from the apparently normal central area of the cornea. As far as could be detected through a magnifying glass there were no abnormalities of the inner arc of the corneoscleral junction, the sclera, the lens, the orange-brown iris, and

the conjunctiva. A small reddish mass was just visible beneath the edge of the upper lid in its outer third, which when reflected revealed an enlarged highly injected and very tender lacrymal gland. There was no evidence of pus on its surface or within its substance. On compression of the lacrymal papillæ with the finger, a watery secretion rapidly collected at the inner canthus, only to disappear on removal of the pressure, thus demonstrating the patency of the

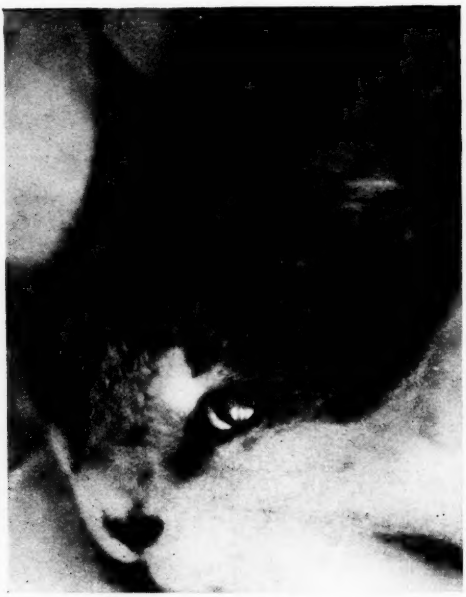

FIG. 2.—Left antero-lateral aspect of the tumour of the external nares, and of the limbus in the cornea of the left eye.

lacrymal sac and nasal duct, there being no escape of tears down the cheek. It was not possible in view of Fuchs's (1) statements to conclude from this latter observation that the lacrymal gland was functional—" the moistening of the eyeball is not due to the lacrymal gland alone. The secretion of the conjunctiva itself and also of its glands helps to effect this. Hence it follows that even after removal or degeneration of the lacrymal gland the eye does not become dry. In the normal state the lacrymal gland secretes scarcely any more liquid than is lost by evaporation from the surface of the eyeball, so that but very small quantities of fluid are discharged into the nose."

The right eyeball and associated structures appeared perfectly normal. There was no perceptible difference in the intraocular tension of either eye; the conjunctival reflexes were present, and there was no evidence of photophobia. The lymphatic and salivary glands of the head and neck, also all the constituents of the buccal and aural cavities appeared normal. No further abnormalities were found.

CLINICAL DIAGNOSIS.—The diagnosis of malignant disease, most probably sarcoma, was made, and the case was deemed inoperable.

POST-MORTEM EXAMINATION.—The animal was destroyed under chloroform, and the examination was commenced within ten minutes of death.

MACROSCOPIC FINDINGS.—The skin over the head was normal. Beneath the subcutaneous fascia a vascular fleshy plate of growth arose from the median nasal suture and spread like a fan backwards over the right fronto-nasal suture to the orbital rim of the right frontal bone, and to a less extent over the left fronto-nasal suture, outwards on to the right nasal bone, and forwards equally over both nasal bones. This superficial growth was intimately incorporated on its deep aspect with the external surface of the underlying bone, which on removal of the growth appeared irregularly pitted, and at the median suture was definitely softened. Transverse saw-cuts were made through the skull at the level of (1) the alæ nasi, (2) the inner canthus, and (3) the fronto-nasal suture. The second section revealed a greyish-pink coloured rather firm mass, bulging into the left superior and middle meatus and the right superior meatus, and apparently arising from the left superior turbinate bone. There was distinct softening of the bone in the regions involved by the growth. This section also demonstrated that the surface growth was due to a bulging out of the growth from the nasal cavity through the median nasal suture. The ethmoid cells, the floor of the nasal chamber, and the nasal ducts showed no evidence of involvement. The nasal mucous membrane appeared as a shining intact layer over the surface of the nasal growth. There was no evidence of fluid or dried and adherent exudate within the nasal cavity.

Though the left mandibular lymphatic gland appeared slightly larger and firmer than that on the right, yet on section there appeared to be no abnormality. All other lymphatic and salivary glands traced down into the mediastinum proved negative. The brain, cranial cavity, and all other structures of the head and neck appeared normal.

Both eyeballs having been enucleated and fixed in "buffer" formalin were examined twenty-four hours later. The right eyeball

appeared perfectly normal, whereas lesions additional to those already described clinically were evident on equatorial section of the left eyeball. Examined under the magnifying glass the fluid in both chambers was normal, the lens was clear, and there were no adhesions. Neither the sclera nor the iris were involved, but the chorioid at its posterior pole showed a white opaque round plate of tissue, 13 mm. wide by 1 mm. at its thickest part, bulging into the posterior chamber. No other pathological lesions were traced in the carcase.

Inoculations of culture media or of laboratory animals with

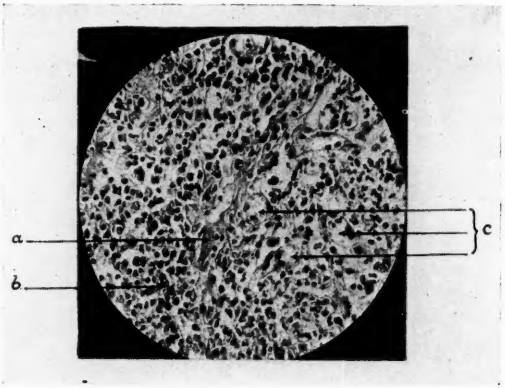

FIG. 3.—Section of the left lacrymal gland, stained with hæmatoxylin and eosin, showing (*a*) early hyaline changes in the stroma; (*b*) a group of gland alveoli undergoing atrophy; (*c*) several blood capillaries are seen on the right of the section. (× 300 approx.)

scrapings of the lesions were not made, also cell-counts of the blood were not made, as the condition was still thought to be sarcoma.

MICROSCOPIC FINDINGS.—Sections were mounted in paraffin, and stained by hæmatoxylin and eosin, Giemsa, Weigert, Gram, and acid-fast methods.

Sections of the growth on the external nares revealed a well-formed fibrous capsule enveloping an irregularly distributed connective-tissue stroma, occasional strands of which are undergoing hyaline degeneration. Within this stroma is a loosely arranged and variegated cell content, the predominant cell being a large atypical epithelioid cell characterised by a narrow rim of faintly staining eosinophil cytoplasm surrounding a large oval clear vacuolated nucleus. The nuclei of a certain number of these cells contain nucleoli. Again here and there these cells have collected in fives and sixes forming plasmodial

masses. Many round cells, leucocytes, and to a lesser extent plasma cells, are scattered diffusely through the section. Young blood-vessels with but a single endothelial-cell lining penetrate the mass. (*Vide* Fig. 4.)

The greater part of the growth in the nasal chamber consists of this granulation tissue which may be traced along the loose areolar tissue clothing the bony laminæ of the turbinate bones, leading here and there to absorption of the bone, but in all parts lined by an intact and healthy columnar epithelium. On the contrary, in the most

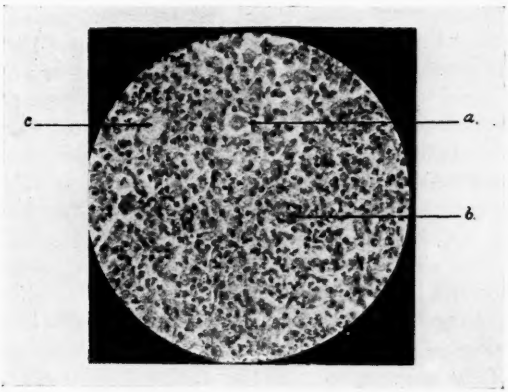

FIG. 4.—Section of the externa nasal tumour, stained with hæmatoxylin and eosin, showing (*a*) an atypical epithelioid cell with vacuolated nucleus; (*b*) a cluster of these epithelioid cells forming a plasmodial mass; (*c*) a blood capillary. (× 300 approx.)

anterior and exposed extremity of the intra-nasal growth, which shows slight ulceration of its surface, the granulation tissue mass merges into an area almost entirely composed of spindle-shaped cells strongly suggestive of spindle-cell sarcoma.

The granulation tissue is reproduced in sections of the lacrymal gland, mandibular gland, and eyeball of the left side.

The median horizontal section through the entire lacrymal gland mainly consists of granulation tissue which penetrating along the stroma in and around the gland acini has replaced the parenchymatous elements. But few isolated islets of acini characteristic of the normal gland remain, all stages in their breakdown being evident. (*Vide* Fig. 3.) This replacement of the parenchyma is also seen in the left mandibular gland. Another striking resemblance in the histology of these two glands is the generalised hyperplasia of the connective

tissue stroma, which in the more central parts has undergone hyaline degeneration. Again the gland capsules are normal.

In equatorial sections of the left eyeball granulation tissue (constituting the limbus observed macroscopically) penetrates forwards from the corneoscleral junction between the lamellæ of the cornea, leaving uninjured both Bowman's membrane with the anterior epithelium and Decemet's membrane with the posterior epithelium. Also the same atypical tissue constitutes the chorioidal mass pushing the undamaged retina forwards into the posterior chamber. There is a slight infiltration of the iris with the round cells, otherwise the structures remain unaffected.

Sections of the right mandibular and left retropharyngeal glands gave negative results.

In spite of repeated and most careful searching no parasitic organisms were found in any of the sections, or in scrapings made from the nasal growth.

Discussion.—The uniformity of constitution of this new tissue in the sites affected is very striking. The histology has been already detailed.

It observes identical channels of growth. In the cornea the new tissue penetrates between the lamellæ of corneal cells and the chorioid causing a bulging of the lining membranes; in the lacrymal and mandibular glands it courses along the stroma, leading to pressure atrophy of the parenchyma; and again it is seen passing along the areolar tissue of the turbinate bones overflowing through the nasal suture on to the exterior. In other words, the granuloma appears to spread in the line of least resistance, causing by its slowly increasing growth distension of elements capable of expansion, and atrophy of elements in tissues which cannot accommodate themselves to the increased pressure.

From the distribution of the lesions interesting speculations arise as to the origin and spread of the granuloma. Though the initial observation of the nasal tumour by the owner in March does not date the onset of the condition, yet the fact that it was the first abnormality observed, and that it proved on post-mortem to be the site most extensively affected, is strong evidence in favour of its being the primary focus. The more recent affection of the associated left mandibular gland points to a lymphatic spread from nose to gland. Then the eye lesions were found at the corneoscleral junction and in the post pole of the chorioid, points in direct relationship to the ciliary vessels. This observation suggests two paths of infection: (1) endogenous spread (i.e. via the blood), which is discounted by the unilateral distribution, and (2) lymphatic spread from the nose, which in spite

of the possible objection of its presupposing a " retrograde embolism " in the lymphatic distribution to the eyeball, appears to be the more probable route. Lymphatic spread to the lymphoid tissue of the lacrymal gland would be consistent with the theory advanced. A primary seat in the lacrymal gland with passage of the " causative agent " down the nasal duct may be discounted, since neither the nasal duct nor the region of its nasal orifice was affected.

Again, direct " appositional " passage from gland to cornea would be equally untenable, for though the limbus was in direct contact with the lacrymal gland, yet the bulbal conjunctiva remained intact, and any irritant body attempting to pass from the gland would be swept off the bulbal conjunctiva by the lids.

Thus far these considerations would suggest that the new tissue was of the nature of a granuloma arising from the lymphoid nodules of the structures affected, and arising as a response by proliferation on the part of the reticulum cells to some irritant as yet unrecognisable. The localised area of spindle cells in the intranasal tumour may suggest the terminal transformation of a granuloma into a true neoplasm, yet the absence of the true characters of neoplasia, while not invalidating, is antagonistic to, this notion.

The author has not been able to identify these findings with any recognised condition in our domestic animals. In many of its clinical and histological features the affection bears a close resemblance in the nasal lesion to rhinoscleroma, and in the lacrymal gland lesion to Mikulicz's disease, two conditions in man infrequently met with in this country.

Finally, there is a close clinical analogy between Towne's, Guy Sutton's, and this case. In all three the swelling appeared on the external nares, increased slowly and gradually without the cardinal signs of inflamation, in cats aged from three to four years, which revealed no evidence of constitutional disorder. Also after consideration of Dr. Bashford's report on Towne's case—" The tumour on the cat's nose, on microscopic examination, shows the features of a granuloma rather than those of a sarcoma. We also inoculated a number of cats, and the rapidity with which they have developed tumours appears to bear out the conclusion that the tumour was of an infective nature "—there is added testimony to the inference that all three cases were examples of the same condition.

Conclusions.

1. Cats are attacked by an affection (as yet unnamed) of the lymphoid nodules in the submucosa of the nasal cavity.

2. The causative factor induces proliferation of the cells of the

reticulum, and accumulation within the focus of round cells, leucocytes and fibroblasts, constituting a type of granuloma.

3. This causative factor spreads by way of the lymphatics to other lymphoid tissue-containing structures of the head.

4. The local foci of granulation tissue by their rapid enlargement lead to atrophy of elements unable to withstand the constant increasing pressure. It is the latter characteristic which determines at least the earlier clinical manifestations of the condition.

5. Future investigation may establish a relationship between this disease in cats and rhinoscleroma, and, or, Mikulicz's disease in man.

Clinicians would greatly assist future investigation by kindly dispatching cats affected with this condition to the laboratory.

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BONE SURGERY IN CANINE PRACTICE.

BY HENRY GRAY. M.R.C.V.S.,
Kensington, London.

THE treatment of injuries to bones other than by splints or by leaving them alone is rarely reported in veterinary literature. Apparently this is not because suturing, screwing, ferruling or plating fractures is not adopted in cases where the fractured ends cannot be maintained in apposition by splints.

The commonest fractures in which suturing, etc., are sometimes necessary are those of the femur, humerus, and jaw. Suturing may be carried out with successful results even in cases where the ends have been disconnected for several weeks. The animal so operated on may carry the embedded metallic suture for several years, until death takes place, without any bad results.

To obtain successful results the operation must be carried out under strict aseptic rules, no chemicals or oxidised material must be used. In recent fractures in young animals where there is much damage done to the soft tissues and there is a blood-clot, unless strict asepsis is adopted the wound is liable to become septic and the success of the operation nullified.

In one case in a puppy where the wound became septic convulsions recurred until the wound was opened and rendered antiseptic, when there were no more " fits." But the sequel was that the suture

material had to be removed, and it was found that about half an inch of bone at the lower end of the fracture had become detached and had also to be removed.

Fracture of the jaw in robust breeds rarely requires suturing. By feeding on sloppy food a callus forms, and in time becomes consolidated. It is, however, a different matter when it occurs in those breeds in which there is often a deficiency in the osteogenesis, when repair is difficult. In such cases it is necessary to suture the two ends together, so as to prevent friction between them and their separation. In a Pekingese sent to have the fractured jaw sutured the animal died suddenly in the arms of an attendant who was holding him. Before the operation had commenced he was discovered to be dead. It was found on examination he had enormous enlargement of both thyroids. He had been liable to syncopal attacks, which had not been mentioned before death had taken place.

Fracture of one of the lower condyles of the humerus is one in which screwing the detached condyle to the other is called for. Such a fracture may occur in both limbs at one time, or first in one limb and some time later, varying from a week to several months, in the other.

When the thigh or humerus has been sutured an extension splint should be applied to prevent the limb being drawn up and the broken ends of the bone assuming an angular position and putting an undue strain on the ends of the fracture. In these situations in animals one cannot very well immobilise the joint above, if one can the joint below, the fracture. It may be possible, especially in the bitch, but it is not practicable.

Very few instruments beyond an archimedean drill, a wire-cutting pair of pliers, or a screwdriver and bradawl, a few screws, or a piece of silver wire or thin plate are required. Of course, a scalpel, forceps, suture needle and silk are necessary to cut down on to the bone, or to suture up the resulting operation wound. They must all be rendered sterile, and be maintained so until the operation is finished.

Reduction of a fracture so that the ends are brought into apposition cannot in long-standing cases be obtained by traction. It may, however, be readily brought about by bringing the two ends together at right angles and then using a little pressure or leverage to straighten out the bone.

Unreduced Fractures.

On many occasions I have been called upon to treat fractures that have not progressed as satisfactorily as desired. In most

instances they have been unrecognised unreduced fractures of the radius and ulna or of the tibia. In such there has nearly always been distortion of the limb and riding or overlapping of the fractured ends.

As they have generally been of long standing, reduction by traction has been impossible, even when the animal has been under deep anæsthesia. Experience has shown that the easiest method to adopt in breaking down the adhesions is to bend the fractured bone over the edge of the table. The ends may then be approximated in an angular manner, and the bone afterwards straightened out. Apposition is maintained by an extension splint which does not reach to the foot, and a bandage is applied so that both joints into which the fractured bone enters into formation are unmobilised and the foot is included. The adhesive material I generally use is *Emplastrum picis P.B.* I rarely use a bandage more than 1 inch in width.

TREATMENT OF OPERATION WOUNDS.

By FREDERICK HOBDAY, C.M.G., F.R.C.V.S., F.R.S.E.
(*formerly Examiner in Surgery to the Royal College of Veterinary Surgeons*),
Kensington, London.

THERE is no domain of surgery which affords a nicer field for the antiseptic treatment of operative wounds than in that of the dog and cat. In my student days I was taught that it was practically impossible to get any wound on a dog's body to heal by primary union on account of the tendency of the animal to continually lick the parts, particularly after they were sutured ; and it was a common practice, as far as the position of the wound permitted it to be possible, for this to be bandaged. From experience of many thousands, literally, of surgical wounds in the dog and cat, including over three thousand on the abdomen alone, *I am prepared to dogmatically assert that, unless the skin is unbroken before the surgical incision is made, it is neither necessary nor wise to wash the skin beforehand or to be continually dabbing it with lotions, or to apply bandages, afterwards.*

The method which experience has taught me to be the most successful is to give the parts a dry shave with a sharp razor (always shaving in the direction of the hair), and to paint with tincture of iodine, allowing this to dry before commencing the operation. After the wound is closed the parts should again be painted with iodine, and this allowed to dry before the dog is placed on a clean sheet or blanket in its kennel. For the after treatment, paint with iodine once a day and remove the sutures at discretion, generally between the seventh and tenth days.

AN UNUSUAL GENITAL ABNORMALITY.

By WALTER P. KENNEDY,

Carnegie Research Fellow, Department of Physiology, University of Edinburgh.

THE following is an account of abnormal genital development in a dog which is of such a rare nature that it was thought worth reporting in full.

The history of the case is as follows: When the animal was ten weeks old a total thyroidectomy was performed, the totality of the operation, and the conservation of the parathyroids being confirmed

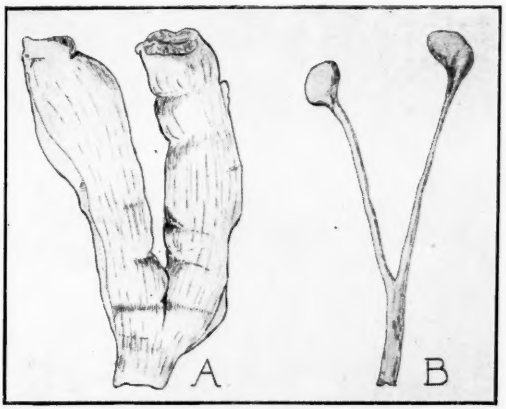

FIG. 1.—A, Uterus of the Abnormal Animal. B, Uterus of Control Animal.

at the post-mortem. It made an excellent recovery and developed the signs of typical cretinism, though apparently not of severe degree, being slow, timid and sleepy, and rather plump and infantile. The increase in weight from the date of thyroidectomy till death was only 137 per cent. as compared with 218 per cent. increase in a control animal of the same litter which was normal in every way. For about ten days before the animal was killed, that is, about six months subsequent to the operation, its behaviour indicated that it was in heat, and the external genitalia and mammæ became enlarged, and traces of a vaginal discharge were observed. At the post-mortem the uterus was found to be very much hypertrophied, stretching nearly to the diaphragm, and having almost the appearance of a pregnancy. Fig. 1 is a photograph of the uterus besides that of the control animal men-

tioned above. On incising the uterus a considerable quantity of a grummous fluid escaped, which consisted of old blood, mucous and desquamated cells, indicating that at least a partial stenosis of the cervical canal was present. The ovaries were somewhat elongated in shape, and several large corpora lutea were present.

Paraffin sections were cut of the ovary, the cervix and several

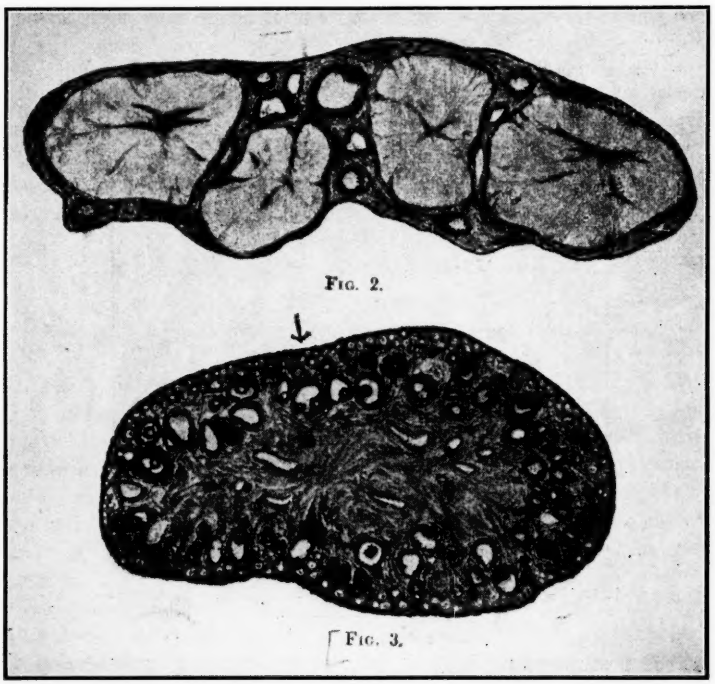

FIG. 2.

FIG. 3.

FIG. 2.—Direct Camera Drawing of the Ovary of Abnormal Animal.
FIG. 3.—Direct Camera Drawing of the Ovary of the Control Animal. Arrow points to biovular follicle.

portions of the cornua and stained variously. Weigert's hæmatoxylin and eosin were found to be the most satisfactory.

Figs. 2 and 3 are direct camera drawings of the ovaries of the abnormal and control animals, and show the marked difference between them. In the first case there is every appearance of maturity, and in the second the section is clearly that of a young animal, and when one considers that the effect of thyroidectomy is to produce infantilism of the genitalia, the apparent maturity becomes all the

more striking. Four large corpora lutea are seen in the section and several growing follicles, one of relatively large size, while the stroma is considerably fibrotic, which is a condition associated with age. In the section of the control ovary all the follicles are distributed in the cortex and quite young in appearance, while the stroma is not fibrosed. It is interesting to note in passing that one follicle (indicated by an arrow in the figure) contains two ova, and this condition seems to be not uncommon in the ovaries of young dogs, as the writer has several sections from different animals showing the same phenomena.

A longitudinal section of the cervix is shown in Fig. 4, and is a direct photograph. The muscle tissue is considerably hyper-

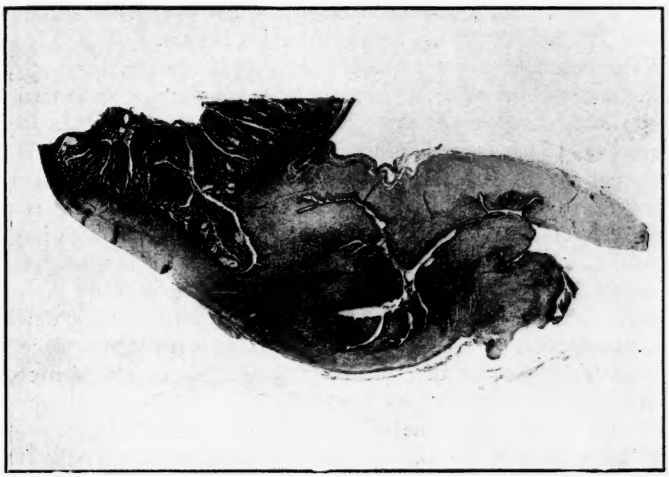

FIG. 4.—Photograph of Longitudinal Section of the Cervix.

trophied, and there is no scar tissue or other sign of chronic inflammation present, and in the small portion of uterine mucosa shown in the section the conditions of hypertrophy and hyperplasia are well shown by the thickness of the layer, and the enlarged and tortuous lumina of the endometrial glands.

The section does not show the cervical canal to be patent, though this was shown by serial sections, but it is possible that the patency is only apparent and due to shrinkage of the tissue during dehydration, for the large hæmatometra indicates some stenosis must have existed in the cervix, and the absence of any hæmatocolpos precludes the possibility of occlusion lower down.

Sections through the cornua show it to be in an early stage of

pseudo-pregnancy (3) though of an abnormal type. The lumina of the glands contain red cells and leucocyts, with colloid and some desquamated epithelial cells. A great number of polymorphs are observable and numbers of other varieties are to be seen, both eosinophils and macrocytes. The epithelium lining the glands and crypts is composed of columnar and epithelial cells, while the vessels of the mucosa are markedly dilated and some have apparently ruptured and liberated their red cell contents into the gland lumina and also on to the surface. There is considerable infiltration of the interglandular tissues with polymorphs and eosinophils, which are to be seen in great numbers in the cavities of the glands and in that of the organ as a whole. In addition there are large numbers of mononuclear cells, which, from their close association with the glandular epithelium, appear to have been proliferated from it.

The origin of this interesting condition is obscure, but at least quite unconnected with the operation of thyroidectomy performed on the animal, since none of the other animals operated on showed any similar phenomena ; in fact, the contrary was the case, as would be expected, for the early loss of the thyroid is followed by retardation of genital development and not acceleration. It seems that this is not merely a case of hæmatometra due to stenosis either through imperviousness of the os internum, or extreme fineness of the canal as in Case V cited by Cullingworth (1), as this would not explain the condition of the ovary, and moreover in such cases of obstruction giving rise to retention the endometrium is atrophied and the muscular wall thin, and a deposition of fibrin takes place (2), none of which occur here.

The cause of the uterine abnormality must be sought in the ovary, for though it is by no means certain what is the cause of the early maturity of this organ, ovulation has occurred with the subsequent formation of corpora lutea, and the outpouring of their internal secretion into the circulation. Leo Loeb (4) has shown that the hormone of the corpus luteum causes hyperplasia and hypertrophy of the uterine mucosa in the adult, and it is perhaps not making too large an assumption to extend this influence to the uterus as a whole when the tissues are in the plastic condition of youth. Of course, there remains the possibility that the cause which stimulated the ovary also stimulated the uterus, but in the absence of any clue as to the nature of the stimulus one would hesitate to do more than indicate the possibility of its occurrence, at the same time making it clear that such a possibility is in no way connected with the idea of a " generative ferment " as propounded by Hammond (5).

The early occurrence of corpora lutea is certainly extremely rare,

though Runge (6) states that "growing follicles are by no means uncommon in ovaries of young children, in the second year some having a diameter of 135 μ, and in the third year degenerate follicles being found . . .," and in one instance he found a corpus luteum in the ovary of a recently born child, but this latter instance must be considered as very exceptional.

I have to thank Mr. Norman Dott, F.R.C.S., who was conducting these thyroidectomy experiments, for the material and case notes from which this description is compiled.

The expenses incurred have been partially defrayed by a grant from the Earl of Moray Fund.

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URETHRAL OBSTRUCTION IN THE CAT.

BY HAMILTON KIRK, M.R.C.V.S.,
London.

THE male cat is peculiarly susceptible to "retentio urinæ" arising usually from mechanical obstruction of the urethra. By far the commonest obstruction is that caused by a sabulous material, and in more rare instances by the presence of cystic or urethral calculi.

SYMPTOMS.—When a subject of this abnormality is first presented for examination, the history usually is that the animal had for the past twelve to twenty-four hours appeared very restless and uneasy; that it had occasionally plaintively mewed, swished its tail, refused food, appeared to avoid lying down, and preferred to maintain a crouching posture with the back arched. From observing the cat straining, the owner concludes that it is constipated. Whilst, at first, such cats will wander aimlessly about, hide under furniture and appear anxious, they later avoid all movement as far as possible, except perhaps the angry swishing of the tail. They are often observed straining to pass urine, sometimes without any success, and at others managing to void a few drops only. Inquiry will occasionally illicit the fact that no urine whatever has been passed by the animal for several days. The patient becomes dejected and miserable, and resents any manipulation of the abdomen. This in itself is sufficient indication of the seat of the trouble, and palpation

will disclose the presence of a very large, tense, ovoid body occupying the greater part of the abdominal cavity.

Owing to its great size and firmness, a person inexperienced with the condition might be led to believe he was feeling a tumour or abscess, and, unless he changed his diagnosis, might proceed to perform laparotomy for its removal. After two or three days of acute pain have been endured without relief, the animal looks haggard and worn out, becomes emaciated and weak, coat stares, eyes recede, and a comatose condition ensues, soon to end fatally from toxæmia, unless energetic measures are adopted.

TREATMENT—1. *Pressure from Without.*—The cause of the retention must be ascertained and removed without any delay. In the first instance effort should be made to empty the bladder by exerting gentle pressure upon it through the walls of the abdomen. This will result in a bead of urine appearing at the preputial opening, carrying with it, perhaps, some obstructing sabulous deposit. The assistance thus afforded the cat in expelling such a plug may possibly be all that is required, as once the obstruction is removed, the urine will flow away normally.

2. *Manipulation of the Urethra.*—In other cases this procedure fails entirely to dislodge any obstruction or facilitate the escape of urine. The prepuce must then be drawn down to expose the penis, and the organ gently compressed between greased or wetted thumb and finger. In this way sometimes casts of cheesy matter may be squeezed out through the urethral orifice, and the passage cleared. In the majority of cases it certainly seems to be the penial portion of the urethra which becomes occluded, and this may perhaps be explained by the frequent presence of a penial bone, and also by the fact that this portion of the urethra is the narrowest in lumen and the least dilatable.

3. *Catheterisation.*—Not infrequently it is found desirable to pass a catheter to serve the treble purpose of dislodging obstructions, drawing off the urine, and flushing out the bladder. The passage of a catheter in a cat is a task of peculiar difficulty to those who are not conversant with feline practice. The female cat often presents the greatest difficulty owing to the operator's inability to locate the urethral orifice In the male cat there is not quite the same impediment, provided one is possessed of a suitable instrument. None of the gum-elastic or rubber catheters, as made for canine patients, is of any use, as the smallest size seems to be much too big for the male cat. Gray's cat catheter is, however, splendidly successful, and by its use all difficulty (so far as the male is concerned) is banished. This instrument is a straight silver tube about six inches in length, and has

a silver stilette. The practitioner who resides many miles from any maker of surgical instruments is well advised to equip himself with Gray's catheter if he contemplates feline practice.

For catheterisation, having regard to the nervousness and sometimes refractory behaviour of the cat, and the tenderness likely to be present, the writer always prefers to fasten his patients upon an operating table. It is sometimes desirable to anæsthetise. THE MALE CAT is placed in a dorsal position, hind legs wide apart; the prepuce is pushed downwards with thumb and first finger of the left hand to expose the penis. The sterile catheter (warmed, lubricated, and with its stilette) is then inserted into the urethral orifice, which is, of course, at the very end of the pointed penis. The point of the catheter, having entered the penial urethra, is now directed downwards (towards the table) and slightly backwards. Gentle pressure is then exerted upon the instrument until the soft resistance caused by the curvature at the perineal arch is felt, when the point is directed towards the animal's head, the catheter being then almost horizontal with the floor of the pelvis. No force should be exerted at any time, or there will be a possibility of puncturing the urethra or bladder. THE FEMALE CAT is perhaps more advantageously placed when secured in an abdominal or upright posture, since the urethral orifice is upon the floor of the vagina. The latter is generally so very small that the use of a speculum for locating the meatus is impossible; but by gently sliding the point of the catheter in a forward and slightly downward direction along the centre of the vaginal floor, the instrument will be found to continue without resistance when the point has entered the urethra. The orifice of the latter is actually situated about $\frac{3}{16}$ to $\frac{1}{4}$ inch posteriorly to the os uteri. If the urethra is missed it is quite easy to direct the catheter into the os, although such a mistake would soon be discovered. When the instrument is properly in the bladder, one can detect its movement through the abdominal wall.

4. *Bladder Puncture.*—In the event of failure by any of the above methods to shift the obstruction, one has still other expedients to fall back upon. The bladder can, for instance, be evacuated by inserting a trochar and canula into its lumen from without the abdominal wall. A spot is chosen on the linea alba, close to the brim of the pelvis, so that it is as nearly as possible the neck of the bladder which is punctured. The area is shaved and disinfected, a trochar of fine bore selected and boiled, and then inserted for a short distance beneath the skin before directing its point down through the abdominal wall into the bladder. The relief afforded by this operation is immediate; and often the removal of pressure upon an obstruction will permit it

to move and perhaps even pass out with the next outflow of urine. No very great risk is run provided that surgical asepsis is observed, and if any serious difficulty is experienced in the passage of a catheter, bladder puncture is advised. It can be repeated several times if necessary, but experience has proved that, once the muscles have been relieved of tension and have regained their tone, together with the shifting or breaking up of the obstructive mass, the cat begins to micturate voluntarily.

5. *Urethrotomy.*—Cases will occasionally be presented which would appear to be most successfully dealt with by performing urethrotomy. Injuries or swellings of the penis, inability to pass a catheter or clear the urethral passage, or the presence of a urethral calculus, are contingencies which might lead the surgeon to this conclusion.

Urethrotomy is undoubtedly a difficult proposition in cats owing to the exceedingly small size of the urethra, but it has on many occasions been performed with success. The site of the incision is just above the scrotum (when the cat is standing in the normal position); if the animal is already neutered, the incision may be made through the scrotum. The cat is fastened to the operating table in a dorsal position and chloroformed. Having denuded the region of hair by shaving, the terminal inch of the penis is pinched up between index finger and thumb of the left hand, so that it stands out like a piece of thick string. The overlying structures are then very carefully incised longitudinally until the urethra is reached. This is just punctured with the point of a scalpel, and a silver probe introduced. When it is ascertained that the hole made is sufficiently large and in the correct position, a catheter may then be passed in either direction, and all obstruction cleared. Great care must be taken to avoid cutting the penis, and for so delicate a task the cat must be thoroughly anæsthetised and the operator devoid of haste or impatience. Where surgical cleanliness has been observed, the wounds will rapidly heal, and no sutures are required. The writer's last case was satisfactorily healed in three days.

PAPILLOMA OF THE BLADDER.

By HERBERT BUCKINGHAM, M.R.C.V.S.,
Norwich.

The patient, a large retriever dog, twelve years old, which I had known for some considerable time to have led a very healthy life,

was brought by his owner to be painlessly destroyed as there had been recently evidence of difficulty in passing urine. I did not attempt treatment, but, after death, for my own satisfaction, made a post-mortem examination. A small calculus about the size of a small pea was found in the urethra just behind the bone of the penis, and this had evidently been the actual cause of his latter-days' discomfort. The bladder contained gravel and sandy material with a few calculi about the size of a small pin's head. The mucous membrane of the bladder contained the tumour as illustrated in the sketch. Professor Shattock, Pathologist to the Royal College of Surgeons' Museum, examined the specimen and gave as his opinion that it was a papilloma. I have on numbers of occasions diagnosed and found calculi in the urethra and bladder, but the rarity of a tumour in the interior of the latter organ makes me think that the case is worth recording.

PAPILLOMA OF THE BLADDER.

DOUBLE FRACTURE OF THE LOWER JAW IN A DOG.

BY HERBERT BUCKINGHAM, M.R.C.V.S.,
Norwich.

April 14, 1925.—Fox terrier dog, one year old, brought to my surgery by the owner, the only history being, " This is how he came home."

I found two fractures—one at the symphysis and the other immediately anterior to the last molar on the right ramus.

Both fractures were compound (as I am told all lower jaw bone fractures are) and septic. The bone between the fractures was quite loose. Fracture No. 2 was comminuted.

After cleansing, etc., I placed a piece of wire round the two

canine teeth of the lower jaw, thus reducing and fixing the trouble at the symphysis.

A medical man was present when the case came in. I said to him, "I wish I knew of a surgeon who would put a plate on fracture No. 2." The doctor said, "I believe I can procure one for you." He did so.

April 16.—The surgeon came and saw the case, and kindly offered to put a plate on.

April 17.—He came again. I administered chloroform.

He, after taking a great deal of time and trouble to render the local tissues as aseptic as he could, bared the bone, exposed the fractured ends, drilled a hole in the posterior piece, and then began to do the same with the anterior piece, when out fell a small spicule about the size of a pea.

However, the hole drilled was anterior to the cavity left by the loose piece of bone which had fallen out. He then screwed the plate on. Then he removed my wire, at the symphysis, and replaced it by a piece of silver wire, enclosing all incisor teeth.

April 19.—Until now the patient had been kept alive by pouring liquid food down the sound side of his mouth. To-day he is lapping milk.

April 20*th*.—Eating minced beef.

April 21*st*.—Eating beef cut up about size of a horse bean.

May 9, 1925.—Wearing his plate, screws and wire very comfortably.

He barks, feeds well, and has put on a deal of flesh. I was astonished to see how well the large wound healed with only three silk-worm gut sutures in it.

May 26, 1925.—The surgeon came and lifted out plate, screws, and three pieces of bone. Two pieces of bone were *in situ* on plate.

June 29, 1925.—Normal in health. The canine teeth that side did not fit properly, so I sheared them off. I would have done this before, but the owner objected.

FRACTURE No. 2.—This is still a little loose, as if the two ends of the bone were connected by fibrous tissue and not completely joined up with bony tissue.

At present I suppose one can only call it a semi-successful case, from a surgeon's point of view. I find there is something to be learned from every case we come across, successful or otherwise.

Anyhow, the dog is well in health, in good condition, and serves his purpose as a pet, much to his owner's delight.

December 16, 1925.—The Fracture No. 2 is not so loose as it was.

Fracture No. 1 made a quick, perfect recovery.

XUM

FOREIGN BODIES IN THE MOUTH OF THE DOG.

By J L. PERRY, F.R.C.V.S.,
Cardiff.

In dog practice it is not uncommon for practitioners to find bones needles, pins, wire, and such-like fixed in some part of the patient's mouth. The following cases come to my mind in which the offending body was none of the above mentioned.

(1) Fox terrier, brought to the surgery with the owner's statement, "He has got a hairpin through his tongue." On examination, the anterior two inches of the tongue was found congested and a deep red colour. Owing to the swelling, it was difficult to get anything beneath the wire, which was just visible. Eventually, however, it was cut through with strong nippers, and on removal it was found to be one of the wire pins which butchers use to attach labels to their joints. They are about 1½ inches long and have a circular portion formed by the wire being bent round.

(2) Cross-bred retriever, brought to the surgery, the owner complaining that the dog was continually gaping and was eating very little.

A foreign body was detected lying flat between the cheek and the molar teeth. It had embedded itself in the buccal membrane, and was detached with some difficulty. It was a slice of wood with sharp edges—a piece such as is cut off when felling a tree.

(3) Cat, brought to surgery dribbling excessively from the mouth, the saliva having a very offensive smell. Examination revealed portion of sheep's trachea (two of the rings) enveloping the posterior part of the tongue. A sharp probe-pointed pair of scissors soon cut through the rings and allowed their easy removal, and the patient was relieved at once.

THE AUTOGENOUS VACCINE TREATMENT OF INTERDIGITAL ABSCESS.

By HAROLD STAINTON, F.R.C.V.S.,
Kensington, London.
And A. COMPTON, M.B., D.Sc.,
St. Mary's Hospital Medical School, London.

Probably one of the worst bugbears in canine practice is interdigital suppuration. Treatment of this condition, in a large proportion of cases, proves to be unsatisfactory both from the point of view of practitioner and client.

The average layman accepts the fact that such diseases as cancer,

etc., are incurable, but he may not appreciate so readily that a trifling swelling on his dog's foot may be recurrent and chronic.

Little is known as regards the etiology of interdigital abscess in the dog. Aggravating factors are known—such as tarred roads, barley grass, sea sand, grit, etc. As these notes refer mainly to some observations on vaccine therapy, the commoner routine lines of treatment will only be alluded to. Briefly, they fall under the following headings :—

1. *Surgical :* Lance and curette.
2. *Local Applications :* Iodine, zinc chloride, mercuric chloride, etc.
3. *Medicinal :* Various forms of arsenic, stannoxyl, etc.
4. *Colloidal Injections :* Arsenic, Manganese, etc.

Any or all of these methods of treatment may give temporary relief, but a *permanent* cure cannot be assured.

5. The *Stock Vaccine,* at one period, was in vogue. This consisted of a vaccine made up from stock cultures of the commoner organisms, such as strains of Staphylococci, *Bacillus coli,* etc. In this connection, any case of reported success must be regarded as coincidental. It is impossible to score by shooting in the dark.

The vaccine, to be useful, must be autogenous, specific, and carefully graduated as to dose.

Having abandoned stock vaccines owing to their uncertain or negative results, one next turned to the autogenous vaccine. This, in itself, is nothing new ; but, from a number of experiments made—in this connection it became apparent that much depended upon the handling of even an autogenous vaccine. It was necessary to study the choice of culture media, the correct dosage for each individual organism present, and the intervals of inoculation.

The character and course of an interdigital abscess varies considerably according to proportional presence of Staphylococci and Streptococci, independent of other organisms.

From the clinical aspect there is always a clear demarcation between affections due to Staphylococci and those due to Streptococci —indeed, this may partly explain the variable character of an interdigital abscess. Staphylococci alone, or with other minor organisms, tend to produce a quick-forming abscess, which may disperse spontaneously or after lancing.

Streptococci, on the other hand, are responsible for a more chronic condition of cellulitis and induration by reason of their greater toxicity and resistance to leucocytosis.

The following are six consecutive cases, treated by autogenous vaccine, of which four may be said to be successful. Cases 1 and 2

were so bad that one could scarcely hope for recovery. Although these cases must be counted as failures, it will be seen that the result of inoculation was not entirely negative. There was a decided reaction and an obvious attempt at resolution lasting about six weeks.

CASE 1.

Subject.—Spaniel, aged eight years.

History.—Subject to interdigital abscess in mild form for past five years. Became gradually worse after giving up shooting work. For past six months painful abscess every two or three days. All four feet (but chiefly the front ones) very tender as the result of persistent suppuration. Lethargic and will take little exercise.

Organisms Present.—(1) *Staphylococcus albus;* (2) Diphtheroid bacillus; (3) Streptothrix (which was not included in the vaccine).

Inoculations from February 20th to March 23rd.

Result.—Entire freedom during April and the first three weeks of May. Recurrence began towards the end of May, and was so severe by the second week of June that, at the owner's request, the dog was destroyed.

CASE 2.

Subject.—Aberdeen, aged two and a half years.

History.—Subject to interdigital abscess for past twelve months. Even when a puppy was addicted to habit of licking paws. Abscess now occurring in one or other fore foot about once or twice weekly.

Organisms Present.—(1) Staphylococcus; (2) Streptococcus; (3) Coliform bacillus.

Inoculations from February 28th to March 30th.

Result.—Entire freedom from abscess until June 20th. Then recurrence took place and dog was destroyed.

As mentioned above, these two cases are only recorded as instructive failures.

CASE 3.

Subject.—Chow, aged nine years.

History.—Abscess occurring on an average once weekly, but sometimes only once monthly for past two years.

Organisms Present.—(1) A Gram positive Strepto-coccobacillus; (2) A Gram negative diplococcus (with involution forms).

Inoculations from May 5th to May 24th.

Result.—No recurrence up to date (December).

CASE 4.

Subject.—Spaniel, aged six years.

History.—Abscess formation at irregular intervals for past eighteen months. Intervals becoming shorter.

Organisms Present.—(1) Staphylococci (predominant); (2) Gram negative diplococci.

Inoculations from April 10th to May 25th.

Result.—No recurrence up to date (December).

CASE 5.

Subject.—Pekinese, aged five years.

History.—Suppuration and lameness practically constant for past nine months.

Organisms Present.—(1) Streptococci; (2) *Bacillus coli.*

Inoculations.—Six given at 3-day intervals; six given at 7-day intervals, from January 12th.

Result.—One slight recurrence during the year up to date (December).

CASE 6.

Subject.—Pekinese, aged eight and a half years.

History.—Periodic swellings on feet for past three years—latterly incessant.

Organisms Present—(1) *Staphylococcus albus;* (2) Strepto-diplococcus; (3) Gram positive micrococci; (4) Gram negative bacilli.

Inoculations.—Six given at 3-day intervals from March 3rd last.

Result.—A slight swelling of short duration in November.

All these are later cases chosen from a group in which the results have been sufficiently good to encourage further study of vaccine therapy in the treatment of interdigital abscess.

In every case six injections were given at 3-day intervals. In some cases the number of injections has been increased up to twelve. The initial doses were small—namely, of Streptococci, 2½ millions; Staphylococci, 5–10 millions.

In collecting material rigid precautions were taken against external contamination. Better results are obtained by inoculating the medium (nutrient agar) direct, and furthermore the various colonies should be differentiated by sub-culture. In order to make an accurate calculation of dosage for each individual organism. Apart from the somewhat speculative value of vaccines, one can only judge by results.

These notes have been prompted by a consistent series of cases which, at the least, give some cause for thought.

THE RESULT OF A COARSE LIGATURE.

By GUY SUTTON, F.R.C.V.S.,
Kensington, London.

A DISAPPOINTING sequel to an otherwise normal after history of a case of ovaro-hysterectomy came under my notice this summer.

At the end of September, 1924, the uterus and appendages of a healthy young maiden terrier bitch were removed at the request of her owner. The body of the uterus was ligatured close up to the os with a coarse calibre Chinese twist, boiled and taken directly from the steriliser. Healing was rapid and did not call for comment.

About midsummer the bitch was noticed to urinate rather more frequently than usual, and shortly afterwards she became dull and disinclined to move, being apparently in pain. Upon abdominal palpation, a swelling about the size of a pigeon's egg could be felt on the uterine stump. The advisability of removing this was suggested to the owner, but as no guarantee against recurrence could be given he preferred destruction. A post-mortem examination showed a fibrous inflammatory growth the size of a pullet's egg, involving the uterine stump and the bladder wall. Undoubtedly the large calibre of the twist was the cause of the ligature, although similar inflammatory swelling had many times been used before without any such sequel.

THE VORONOFF (TESTICLE GRAFTING) REJUVENATION OPERATION.

By F. HOBDAY, C.M.G., F.R.C.V.S., F.R.S.E.
(formerly Examiner in Surgery to the Royal College of Veterinary Surgeons), Kensington, London.

IN the VETERINARY JOURNAL for 1924 I reported a testicle-grafting operation on a very valuable boar for which the owner had given five hundred guineas, the animal being unsatisfactory in regard to the number of his progeny. In this instance, under the directions of Mr. Ivor Back, F.R.C.S., portions of the testicle of a ten-months-old boar were grafted on to the testicles of this animal. The wound healed well, and the boar was used for service two months later, the report being "that he served his sows with great vigour." The result, however, as regards the number of progeny which he begot was disappointing, and finally he was destroyed. The results are reported in full detail in the VETERINARY JOURNALS for June and December.

In February last a client who had been reading of the wonderful results (as mentioned in the lay papers) of the rejuvenation experi-

ments which had been practised on old men with the aid of monkey's testicles and monkey gland, etc., consulted me with regard to the performance of this operation on an old and very decrepit-looking Airedale dog, whose days certainly appeared upon a casual glance to be almost numbered. The animal was 14½ years old, very stiff in his joints, only got up with an effort when lying down, and hobbled about just like a decrepit old man. Under the directions of Mr. Ivor Back, F.R.C.S., portions of the testicle of a year old and very vigorous Sealyham terrier, which had come into hospital for castration, were grafted on to the right testis of the aged Airedale.

The operation was performed in the following manner: Each animal was chloroformed, and the two were then set side by side in a convenient position for the operation. The left testicle was selected in each instance, and under strict antiseptic precautions these were released from their coverings by longitudinal incisions and laid on a sterile cloth. Three sections like the quarters of an orange were then removed from the testicle of the "donor" and sutured with catgut ligatures to the external surface of the "receiver." The *tunica vaginalis testis* of the "receiver" was then carefully sutured over the grafts with catgut, and the external skin was sutured with silkworm gut in the ordinary way, this being afterwards treated as an ordinary surgical wound. Everything progressed satisfactorily with the exception that two of the external sutures gave way, but apparently the grafts "took," and eventually, in about ten days, the wound in the scrotum had healed. The dog left hospital about a month later. The following is an extract from a letter received from the owner in August last:

"It being now six months since you performed the gland-grafting operation on my old Airedale dog, possibly you might like to hear my impressions of its effect upon him.

"He will be fifteen years old next November, and at the time of my bringing him to you it did not seem to me that he could live much longer. He was losing the use of his limbs, was rapidly going blind, had soreness of the skin, a distended stomach, was covered with warts, had great weakness in the legs, and smelt strongly. From being able, in the previous summer, to walk two miles with enjoyment, he was, at the time I brought him to you, barely able to manage a couple of hundred yards, and that only with subsequent exhaustion. At the end of the month after the operation, which he spent in hospital with you, he was taken away into the country. At the expiration of the second month a slight improvement was noticeable in an increased capacity for walking. In another month the improvement was more marked, the smell having greatly improved, most of the warts dis-

XUM

appeared, and his hair, from being very thin, having started to grow again. Moreover his bark deepened to a normal note as distinguished from the *falsetto* tone it had had for some time. At the end of four months the improvement was still more definite: he could walk for over half a mile without signs of fatigue, and in the morning would be lively to the point of rolling and gambolling on the grass. His sight remained about stationary. This period was, I think, about the zenith of his improvement. Since then no change has taken place, and if anything he may have retrograded slightly.

"In summing up the net result of the operation, it seems to me that it arrested the very rapid senile decay he was undergoing without having effected a decisive return towards middle age or youth; on the other hand, it is my fixed opinion that had the operation not been performed, the dog would by now have been dead, or in such a condition as to make it necessary to destroy him."

I have seen the patient on several occasions since, and he certainly did seem to improve for a time, but he is now (December 1925) much about the same, so far as I am able to judge, as he was before the operation.

A MEAT SKEWER IN THE STOMACH OF A DOG.

By S. E. SAMPSON, M.R.C.V.S.,
Sheffield.

A SHORT time ago a little Pomeranian was brought into my surgery with the history by its owner, a lady, that she thought it had been cruelly ill-used by a neighbour; and that a rib had been broken and was sticking out just behind the shoulder blade. Upon closer examination through the hair it certainly did look as if a spicule of bone was projecting, but upon grasping this with forceps the offending object immediately came away in the shape of an ordinary wooden meat skewer 3½ inches long. After the application of a little antiseptic the wound healed without any further trouble and the dog made a good recovery.

LUMINAL SODA IN CANINE PRACTICE.

By G. MAYALL, M.R.C.V.S.,
Bolton.

LUMINAL is a white, odourless, somewhat bitter powder known chemically as phenylethylmalonyurea, and is a synthetic hypnotic and sedative. It is almost insoluble in water, but dissolves more readily in alcohol. Its sodium salt is freely soluble in water. It is

especially useful in epilepsy and other neuroses, chorea, pertussis, menstrual and climacteric disorders, hyperthyroidism, migraine, and pre- and post-operative cases. Dr. Sands used it on ninety-two epileptics in the Manhattan State Hospital, and noticed : (1) Decided decrease in the number of seizures ; (2) diminution in their severity and duration ; (3) definite decrease in the unpleasant after-effects of the fits ; (4) the patients became much quieter and more amenable to care and treatment. The general dose given was ¾ grain three times daily in tea or coffee. Dr. Stanton of Detroit used it on 100 cases and largely in children, and the seizures were modified, diminished, or arrested, and the mental state of practically all the patients was markedly improved. The use of the drug may be prolonged indefinitely.

After reading the above and other reports in the leaflet of the Bayer Products Ltd., and also a report in English medical literature which I cannot trace, I resolved to try the drug in epilepsy and epileptoid attacks in the dog due to distemper, worms, teething, etc. Recently I have had many cases in young dogs where one moment they have been quite normal and the next convulsed, foaming at the mouth, champing the jaws, falling and kicking spasmodically, etc.

Case I.—On November 28th I was called at 10.30 p.m. to a Sealyham dog puppy five months old. He was convulsed through his whole frame, jaws working, foaming at the mouth, hemispheres of the brain throbbing plainly and then violently sick, vomiting clear fluid. His breathing was hurried. His sides were rubbed with menthol and winter-green cream and a flannel jacket put on. A dose of 1 grain of pheno-barbital was given and instructions left to repeat the dose in four hours. In the morning he was easy and quiet and inclined to sleep, but when roused was sensible. The pheno-barbital was continued three times daily in ½ grain doses. On the third day he was still breathing rather quickly, his pulse was 104 and temperature 102°. He was given a hypodermic injection of 40 mimims of camphor oil (1 in 5), and soon became less languid and depressed, and walked about briskly when lifted out of his basket. Briefly, he made a very good recovery, and there has been no return of the attacks.

Case II.—A fox terrier puppy six months old. Running about yapping and showing great fright at any moving object or person, hiding, falling, and champing his jaws. Quarter-grain doses of pheno-barbital were given him three times a day, and he made a fine recovery. The lady owner made a request for a supply of the medicine to keep by her, but so far she has not needed it.

Case III.—A mongrel dog nine months old, with encephalic disturbance—hysterical, crying out, and almost unapproachable. Very

like a sudden attack of virulent distemper. One-grain doses given three times and subsequently ½ grain doses. This dog made a very good recovery within four days.

CASE IV.—A spaniel bitch, yapping and running about excitedly and champing her jaws, not actually falling, but little control over her hind limbs. She was treated with pheno-barbital in a similar way and so far has done well.

I have tried small doses on two cats with loss of power in their legs and off food, and it has done them both good.

I have not been using the pheno-barbital as a powder, but as an elixir made up by a local wholesale chemist. Each fluid drachm of the elixir contains 2 grains of pheno-barbital. It is far handier to dispense than the powder. Dogs and cats take it well, and I have seen no bad after-effects. When I recollect how cases like the above have frequently terminated unsatisfactorily in the past, I am pleased that better successes can now be recorded.

I am anxious now to see its effect in typical cases of chorea.

A FEMORAL FRACTURE TREATED BY WIRING.

BY R. J. STOW, M.R.C.V.S.,
Redhill.

THE patient, an Airedale, eleven months old, was injured by a motor car, and sustained a very severe fracture of the right femur on September 2, 1924. This was reduced and temporarily set by the aid of adhesive plaster strappings within an hour of the accident. There was considerable swelling and great tenderness. On the 4th the swelling had subsided, and I was able to detect very considerable displacement of the ends of the fractured bone, whilst the leg was considerably shorter than the other.

On the 7th an X-Ray skiagraph (Fig. 1) showed a very severe comminuted fracture of the shaft almost in the centre, with an overlap of about 3 inches and the fragments lying parallel to one another, but about an inch apart. The upper fragment is displaced forward and shows considerable splintering, and there are two loose pieces of bone in the surrounding muscle.

On the 10th I decided to attempt to wire the splintered pieces together, and with that object, under the anæsthetic effects of morphia and chloroform, I incised the leg practically from the hip-joint to the stifle on the outside, making a blunt dissection down on to the bone. A retractor was used to keep the muscles well spread apart. Great difficulty was experienced in getting the ends of the fractured bone in apposition, and this took me three-quarters of an hour. Eventually this was done by levering the two ends upwards out of the wound,

FIG. 1.

FIG. 2.

putting them together and then pressing them back into position. A hole was then bored with a metal drill through the bone at each side and silver wire threaded through, twisted and passed once round the bone, the ends twisted together, and afterwards cut off. Three deep sutures put in the muscle and the skin sutured over this. No suppuration took place, and the wound healed by first intention. The dog put the leg to the ground and commenced to put weight on it within ten days. Gradual improvement in the use of the leg has continued ever since, until now he moves and uses the leg quite normally with the exception of a very slightest limp at the walk ; also when lying down he does not bend the leg up under him but keeps it out more or less straight along his side. The second X-Ray photo shows the wire broken and untwisted, and a very large amount of callus formation, which does not look to be a very satisfactory business, but clinically the result is really good.

The second skiagraph (Fig. 2) was taken on March 10, 1925, being six months after the operation.

GOITRE IN YOUNG DOGS.

By G. MAYALL, M.R.C.V.S.,
Bolton.

This is a well-known diseased condition seen by us most frequently in puppies and young dogs. Most of the text-books recognise and describe it, but very little light can be gathered from them as to its cause.

In the human subject many individuals in one region may be affected at the same time, and the complaint assumes a sporadic form. In such instances it is assumed that the hypertrophy and hyperplasia of the gland is produced by a demand on its secretion in excess of what it can manufacture. McCarrison in his researches in Northern India showed that there was an intimate connection " between gastro-intestinal infection, whether by polluted water or otherwise, and goitre."

Iodine is an essential component of the thyroid gland and necessary for its efficient functioning, and when it falls to an amount equal to 0·1 per cent. of the dried gland there is danger of goitre arising.

With young dogs the probable causes of goitre are those which interfere with absorption or utilisation of the iodine taken into the body, such as contamination of water and food by *Bacillus coli* (seen in puppies shortly after being weaned), hard water (calcium in excess). Adolescence causes an increased demand for thyroid secretion, and this demand may be greater in bitch than dog puppies. Medical

literature gives instances where goitrous districts have been cleared of the malady by adding sodium or potassium iodide to the drinking water, by giving them in chocolates to the school children, or by regular use of an iodide in the table salt.

This seems to be a disease in which research and therapy have combined together most effectually to produce beneficial results. There would appear to have been no mistakes made in elucidating the cause of the disease and none in applying an effective remedy.

As regards goitre, apart from the exophthalmic variety, veterinarians ought to be quite capable of dealing with it in young dogs and advising preventive and remedial measures when it occurs in the kennels of valuable sporting dogs. We have had several cases in puppies and young dogs that have recovered completely chiefly by the use of pot. iodide internally and externally, or pot. iodide and thyroid gland extract. Occasionally injection of Lugol's solution or tincture of iodine into the gland has been beneficial. A pure water supply and properly balanced diet is also indicated.

PROCTOPEXIA FOR PROLAPSE OF THE RECTUM IN A PUPPY.

By FREDERICK HOBDAY, C.M.G., F.R.C.V.S., F.R.S.E.
(*formerly Examiner in Surgery to the Royal College of Veterinary Surgeons*),
Kensington, London.

The patient was a white Highland terrier puppy eight weeks old, admitted into the hospital on December 7th, in consultation with Captain Frank G. Buxton, M.R.C.V.S. The rectum was protruding and invaginated to the extent of an inch. This was returned without any great difficulty on three separate occasions during the following day, but in every instance it prolapsed again about an hour later. Captain Buxton informed me that this had been his experience during the previous week, although he had also endeavoured to keep it back by the use of a suture.

The little animal had never had distemper nor had it suffered severely from worms, and there was no cause to which we could assign the trouble. It was in a good condition and well proportioned, although somewhat diminutive in size. On December 9th, under morphia, and by the aid of Waite's local anæsthetic (which acted splendidly), the abdomen was opened under the linea alba immediately in front of the prepuce, the rectum being very gently and with steady traction pulled back into the pelvic cavity. This was materially helped by the aid of an assistant's finger passed inwards through the anus; and so far as I was able to tell no adhesions had

yet formed. The bowel omentum was then sutured with fine silk to the abdominal wall, and the laparotomy wound closed with interrupted sutures in the usual manner. The wound was afterwards painted with iodine once a day, and the patient was returned home on the 14th, the sutures being removed by Captain Buxton a few days later. The after treatment consisted in keeping the dog as quiet as possible and on half rations. His appetite remained unimpaired, and there was no rise in temperature, recovery being uninterrupted.

SARCOMA OF THE RADIUS: AMPUTATION.

By FREDERICK HOBDAY, F.R.C.V.S., and J. McKERLIE, M.R.C.V.S.,
London. *Hungerford.*

THE patient was a pure-bred wolfhound bitch, aged three years, and apparently quite normal on the 11th and 12th of February, when she was exhibited at Cruft's Show in London.

She had had four litters of pups, several of the latter winning high places on the show bench.

SARCOMA OF THE RADIUS.

On the 20th of February she developed a slight lameness of the left fore leg, and at first nothing could be seen to account for it. Presently, however, a soreness developed above the carpus, and the lower end of the radius was distinctly swollen.

On the 17th of March a skiagraph was taken and veterinary advice was sought. Sarcoma of the radius was diagnosed and the limb was amputated.

This operation was performed entirely, and apparently quite painlessly, by the aid of morphia and Waite's (procaine) anæsthetic, the flap method being adopted. The stump healed without any difficulty, and the bitch made an excellent convalescence.

NOTES ON CANINE LEISHMANIASIS.*

By M. L. ROZIER,

Veterinary Surgeon, Grasse.

CANINE leishmaniasis appears to have existed in Grasse for a long time.

Since the year 1912 I had been struck by the quite frequent existence in the dogs of the region of a furfuraceous eczema, which showed itself rebellious alike to changes of diet and all medical treatment. The experience which I actually have of the malady makes me think that this dermatosis represents a usual manifestation of canine leishmaniasis developing in a chronic form. Leishmaniasis may attack dogs of different ages and origins. It is common to observe it on several subjects belonging to the same owner, whether it be as simultaneous or successive cases. The malady may assume the acute or chronic form.

The acute type is particularly frequent in young dogs between six months and three years old. In this form the ailment generally develops in a few days and almost always ends in death.

Subjects affected show stiffening of the four limbs, and often a paralysis, which may only be transient of the hind parts. The ocular mucosa takes on a slight bluish tint. One notes distension of the belly with exaggerated sensitiveness, brought about by congestion of the liver.

Severe febrile attacks in which the temperature may ascend to 41° C., with accompanying generalised muscular tremblings coming on at the time when the sun sets. The sick subject shows symptoms of general hyperæsthesia ; the slightest handling causes yelps or whines.

In this form the complaint may easily be mistaken for the nervous

* *Recueil de Méd. Vét.*, 1925.

manifestations of distemper. Many owners imagine it to be due to poisoning.

The *chronic type* is characterised by the evolution of progressive anæmia. The conjunctiva takes on a white porcelain tint, and the mucosa of the lips is discoloured. The temperature oscillates between 38·3° and 39·5° C. Sometimes one can detect pulmonary or intestinal hæmorrhages. At first the sick dog has a dry and staring coat, then some bare areas appear around the eyes and at the extremity of the ears. Finally the loss of hair becomes generalised, and the denuded parts of the skin are covered with floury scales which reform in spite of repeated washings. Microscopic examination of scrapings of the skin reveals no parasite. The appetite is irregular. At first overfeeding with flesh diet may produce a seeming improvement, but soon the patient refuses nourishment and falls into a cachectic state which is very rapidly made plain.

Death supervenes when the subjects are quite emaciated between the sixth and eighteenth months, but more often the slaughter of the animal is requested by the owner before then.

The lesions met with at the autopsy of subjects which succumb naturally, or which are sacrificed at a late period of the illness, are those of all pernicious anæmias. Very pronounced emaciation; fluid blood, almost colourless, certain carcasses appearing quite bloodless; heart soft, flaccid, considerably hypertrophied; liver enlarged, spleen enormous, measuring almost 10 inches in length and 1½ inches in thickness; mesenteric glands often very apparent, and may attain the size of a haricot bean; marrow of bones without consistence, rosy or deep red in tint, without trace of fatty matter. On microscopic examination of blood-smears one cannot find any structure that may be described as a hæmatozoa.

Clinical diagnosis can only be a diagnosis of suspicion, certainty depends on finding the parasites in the liver, spleen, or bone marrow. On the living subject, when the malady is suspected, one may practise trephining the femur or the tibia and aspirating with the syringe bits of tissue in the medullary canal (Manceaux). On preparations coloured according to Romanowsky one finds typical corpuscles free or included in the leucocytes, they are round or oval, characterised by a voluminous nucleus, in the neighbourhood of which exists the blepharoplast.

It is possible to obtain cultures of the parasite in its flagellated form by sowing in solid or liquid media with the addition of defibrinated rabbit blood.

Prognoses is always extremely grave. Before knowing the exact nature of the affection with which I was dealing, I had tried different

nerve tonics together with overfeeding, but always without success. In two cases, however, I had brought about marked improvement in the general condition by using repeated intramuscular injections of acetylarsan, but I lost sight of the subjects before cure could be considered complete. Since the true diagnosis of the disease has been known to me, I have had occasion to treat two dogs by intramuscular injection of ipecacuanha. The result obtained by this drug was quite surprising; but it would be premature to speak of cure, and I must wait before pronouncing on the prolonged use of this treatment.

I have frequently seen leishmaniasis on dogs living usually in the country and covered with ticks. I have never met with the disease in town dogs living in the house.

COCCIDIAN ENTERITIS OF THE DOG AND CAT.

By M. A. MARTIN,*
Professor of Parasitology.

Since 1851 it has been known that coccidia may be present in the intestine of the dog and cat. But for the most part these protozoa, found at the autopsy of healthy or diseased animals, have been considered as non-pathogenic. Yet each day it becomes more certain that intestinal coccidiosis is a severe malady of our domestic carnivora, which is insufficiently studied from a clinical point of view, that it is not yet individualised in the list of bowel inflammations, is always ignored in default of microscopic examination of the stools, and that sick dogs still die that a rational therapy—yet to be found—would probably save.

Recent parasitological research has revealed the presence of several species of coccidia in the dog and cat. They belong to the two genera *Isospora* and *Eimeria*, which differentiate by sporogonic evolution. In the *Eimeria* the oocyst produces four spores (or sporocysts), in each of which arise two sporozoites (or falciform bodies). In the *Isospora* the oocyst forms two spores, and in each of these appear four sporozoites. The *Isospora* parasites of our domestic carnivora are three in number: *I. bigemina* (Stiles 1891), *I. rivolta* (Grassi 1879), and *I. cati* (Marotel 1921). In 1923 Wenyon found *Eimeria canis* in a London dog, and in 1924 Nieschulz found a similar parasite in a Utrecht dog; this coccidium is remarkable on account of the very variable dimensions of the oocysts (18 to 45 microns by 11 to 28 microns). *Eimeria felinea* (Nieschulz 1924), has been seen in the fæcal matter of a cat; its oocysts (from 21 to 26 microns by 13 to 17 microns), are colourless,

* *Revue Vétérinaire*, September, 1925.

elliptical or cylindrical, and deprived of a micropyle. Chierichi, Chatton and Blanc, Foster and Cauchemez have also reported cat and dog coccidia.

Isospora bigemina reported by Finck under the name of " double corpuscles " live in the dog and cat. This parasite inhabits the deep tissue of the villosities of the small intestine. A curious and unique fact about it is that the oocyst segments at the place in the intestinal villosity itself, and it is in the host that the sporozoites appear.

I. rivolta is found in the cat and dog. It inhabits the epithelial cells of the villosities of the small intestine, where it undergoes schizogonic evolution. Sporogony only occurs outside the animal body.

I. cati (Marotel 1921) and *I. felis* (Wenyon 1923) are probably identical. Wenyon found its habitat was in the epithelial cells of the small intestine.

Frequency.—Coccidia are more frequent than supposed in our carnivora, and are found in many countries. Basset in 1909 reported their presence in great numbers in young dogs with distemper. Brumpt says that 50 to 70 per cent. of the dogs impounded in Paris have coccidia in the anterior half of the small intestine. At Utrecht Nieschulz examining the fæces and the intestinal wall of 50 cats and 35 dogs found *I. bigemina* in 1 cat, *I. rivolta* in 6 dogs and 6 cats, *I. cati* in 7 cats, and in 1 dog oocysts belonging probably to a new species of *I.*

According to Pospiech the parasites are met with in Germany in 16·67 cats examined alive and in 38·8 cats post-mortem. In spite of this frequency coccidiosis of the cat and dog is hardly known ; practically it is never or hardly ever suspected. The reason is simple—adult animals affected do not seem to be inconvenienced by coccidia, and no symptom may be shown in very discrete infestation ; as for young dogs whose parasitism is intense they exhibit morbid troubles, but coccidiosis is not recognised. In default of microscopic examination of the fæces it is taken for intestinal catarrh, or a benign or infectious enteritis. It is quite certain that at present serious and fatal diarrhœas are misunderstood in their nature which ought to be ascribed to coccidia.

But if adults are only slightly parasitised, if infestation is small, very discrete, it does not follow that they may not be dangerous. They become carriers of organisms and preservers of parasites. One knows the capital rôle which " carriers " play in bacterial pathology ; this rôle includes parasitic, protozoal, helminthiasis, affections often developed in adults and causing parasitism of long or permanent duration. In coccidiosis adults are therefore infective, they throw

out oocysts with their dejections; if conditions of humidity and temperature are favourable, these evolve and become dangerous to the young dogs that ingest them. The voiding of oocysts cannot be permanent, but intermittent, and occurs in veritable discharges, followed by periods during which the excrements contain no oocysts. This peculiarity ought not to be lost sight of when one examines the fæces of a suspected adult. Thus adults soil the locales where young dogs become infested; these eliminate very numerous oocysts and spread this contamination; the malady will fix itself and maintain itself and always be making fresh victims.

SYMPTOMS.—Young dogs and cats from the age of one to four months are chiefly attacked. They are dejected, indolent, appetite diminished, and lose flesh. The chief symptom is a severe, tenacious, intractable diarrhœa. The excrements are mucous, sometimes very mucous, and the oocysts are abundant there; sometimes the diarrhœa is hæmorrhagic for a long time. Emaciation is rapid, the sick animals become anæmic; the belly is sensitive to palpation; all anti-diarrhœic remedies fail, and death occurs in a period varying from fifteen to thirty days.

Coccidiosis sometimes complicates distemper in dogs; it may be that it furnishes the port of infection, but the weakness of the animal favours secondary infections and predisposes it to varied microbian maladies.

Microscopic examination of the dejections reveals coccidia; they are very numerous in severe types of the malady, where they persist until death. They are fewer in slight attacks, and may diminish gradually until the subject recovers. This happy result is due to a series of schizogonic multiplications in the intestine; the activity of the parasite abates and then ceases altogether. This spontaneous cessation of the schizogomy is observed in all coccidioses; the reason is obscure. *It would be of great interest to know exactly the mechanism of this phenomenon.*

LESIONS.—Specific alterations in the small intestine, and above all in its posteror half; catarrhal desquamating enteritis, sometimes punctiform or striated hæmorrhages hardly visible. Intestinal contents often sparse, consisting of greyish green fæcal matter, almost liquid with flakes of mucus and infected odour. This stuff contains an enormous quantity of coccidia.

Histological study of the intestinal wall reveals intense epithelial desquamation and lesions of catarrhal enteritis, as little hæmorrhagic foci, situated chiefly at the point of the villosities. On section the endogenous development of coccidia may be followed; it shows classic stages with details proper to each parasite. The great number

of coccidia entail the loss of an enormous number of cells, the parasite feeding on and destroying all the cellular element. When these alterations extend over a large length of intestine they render the functioning of the organ impossible, secretions are gravely disturbed, digestion is very incomplete and absorption difficult; the subject emaciates, becomes rapidly weak and dies cachectic. Coccidia seem to have no toxic action. They do not appear to cause pyrexia. No observer mentions fever, nor makes allusion to any important modification of temperature.

DIAGNOSIS.—Clinical diagnosis is impossible in the actual state of our knowledge. Absence of fever with severe mucous diarrhœa should lead to suspicion of coccidiosis. The usual diarrhœic remedies failing, ought to make us bear in mind protozoan enteritis and notably coccidian enteritis.

Up to the present, microscopic examination of excrement alone aids diagnosis. The diarrhœic matter and mucosities are diluted with water and examined at an average power. The cysts are easily recognised, their membrane has a double contour, their protoplasm is condensed in a central sphere. From the clinical point of view, it is sufficient to know the coccidian nature of the malady; the precise specific diagnosis appears of slight importance.

PROGNOSIS.—It is very grave in the acute forms with a severe course; death is the most frequent termination. Successive litters of young dogs and cats frequently succumb. Prognosis is aggravated in that the malady being generally unrecognised in its true nature, therapy remains powerless; even when a very precise diagnosis has been made it often remains ineffective. Coccidiosis is serious also because it favours the appearance of certain infections and notably some intestinal complications of distemper, or it may be an accompaniment to them.

TREATMENT.—Treatment of coccidian enteritis of carnivora is to be discovered. Drug therapy has brought nothing; atoxyl, antimony, emetine, trypan blue, creolin, have been unsuccessful. A dose of thymol in a mucilaginous base offers the best chance of success. Antoine and Liegeois reported recovery in a case treated thus. In the human subject (Petzetakis) intravenous injections of emetine produced recovery.

PROPHYLAXIS.—Ought to comprise sterilisation of the dejections of sick animals, which should be collected and destroyed by fire to hinder the spread of oocysts and their sporulation. The locales should be disinfected with boiling water; the experiences of Pérard have shown that antiseptics regularly used for disinfection are useless against coccidia of the rabbit, whilst boiling water rapidly destroys

them. Carcases should be buried deeply. Where adults are in contact with young, whether the mothers of the litter or not, their dejections should be microscopically examined repeatedly, and all adults in an infected area may be treated systematically. Man has nothing to fear from the coccidia of the dog and cat, and transversely these do not harbour human coccidia. Wenyon and O'Connor were unable to infect the cat with human coccidia.

This little article has been written with the object of drawing the attention of veterinarians to the subject and to provoke research, so that it may be better understood. Enteritis due to protozoa constitute a fresh chapter of canine and feline pathology. Subsequently I hope to write an article on *Giardia's*, amœbean, and spirochetal enteritis.

A CLIMBING TERRIER.

By FREDERICK HOBDAY, F.R.C.V.S.,
Kensington, London.

The subject of the photograph illustrates the favourite accomplishment of an English fox terrier, the descendant of one of the numerous dogs which used to somehow or other accompany the British Tommy and his units across to France and Italy and other quarters of the globe in which the late war took place. This occurred in Italy, and I saw this terrier take a run and, after several ineffectual attempts, climb up the perpendicular trunk of a tree, bringing down a piece of brick which had been placed in an angle of one of the branches exactly 7 feet up. The owner stated that he could climb as high as 9 feet, and it was most interesting to watch the way in which the little animal apparently reasoned things out and the persevering way by which he eventually accomplished his object.

A Climbing Terrier.

THE VALUE OF PITUITRIN IN METRITIS OF THE BITCH.

By M. LUCIEN COLLETT,
Médicine Vétérinaire, Antwerp,
and FREDERICK HOBDAY, C.M.G., F.R.C.V.S., F.R.S.E.,
Kensington, London.

Notes by M. Collett.

In 1910 the drugs and specialities of the house of Burroughs Wellcome of London became difficult to obtain in Belgium. During this period the Optima Laboratories of Brussels placed at my disposal fifty ampoules of pituitrin, containing in each ampoule 2 c.c (corresponding to a quarter of the posterior lobe of the gland). I promptly made trials of it in cases of dystokia and metritis in dogs and cats. It is chiefly in metritis that I obtain favourable results. In the majority of cases of metritis that I had previously treated I only obtained decisive results by the operation of hysterectomy, an intervention which is always serious, and to which the owner of the animal cannot always be prevailed upon to give consent.

Since using pituitrin I have renounced laparotomy altogether, and registered more than forty complete or temporary cures of metritis with, or without, discharge. Recurrent metritis have been treated in the same way until completely cured. I have only noted two failures out of numerous cures, one in a tabby cat where, on autopsy, there was perforation of one of the horns of the uterus with purulent infection. The other an aged bitch in which the uterus was distended to the fullest extent with secretion, so that it did not act to the corrective influence of the pituitrin, and the patient died of septic infection. Among my numerous cases I may refer to two typical ones: one was an old bitch, twelve years of age, of the German Basset breed, affected for several weeks with a purulent, offensive smelling discharge. A series of eight injections (one daily) produced superactivity of the secretion and drying up in eight days. A year and a half afterwards I was obliged to put the animal to sleep with chloroform on account of inoperable cancer of the intestine. The autopsy enabled me to observe that the two horns of the uterus were reduced to the dimensions of two thin structures like those of the virgin female. In a second very typical case I was called to a Sealyham bitch, six years of age, affected with incontinence of urine to such a degree that the owner, who greatly valued his bitch, had almost decided to have her done away with. On examination I found that the bitch had a full and distended uterus, and was not pregnant. I gave an injection

of 2 c.c. of pituitrin daily. At the fourth injection there was abundant discharge through the vagina, and after the sixth injection the incontinence of the urine disappeared as if by magic. The bitch has remained cured for two and a half years, without any return of the trouble.

I use pituitrin with success in slow labours as a substitute for ergotin.

NOTES BY MR. HOBDAY.

DURING the course of a visit to Antwerp in 1922 M. Lucien Collett, who was then engaged in research work in M. Vanderheyden's Veterinary Serum Laboratory, told me of the excellent curative results which he had obtained by the use of pituitrin in cases of metritis in the bitch and cat, and upon my return to England I decided to give the method a trial. I have now used it, and been able to carefully watch its effects and sequelæ, upon some fifteen cases, in fourteen of which its results were permanently successful. The failure was an aged bitch in which a good deal of septic absorption had already taken place and in which it failed to give any relief or even to cause any perceptible contraction of the uterus whatever.

The following cases may be taken as typical of the remainder :—

CASE 1.—1923. Fox terrier bitch, nine years old, brought under observation on account of occasional sickness and malaise, accompanied by the characteristic mucopurulent vaginal discharge of metritis. This occurred, as is not infrequently the case, about nine or ten weeks after the period of œstrum. Recollecting M. Collett's advice, I used pituitrin (1 c.c. hypodermically), the discharge increasing after the first dose, but diminishing perceptibly after the second, and ceasing entirely after the third. She had five doses altogether at three-day intervals. Six months later this bitch again showed vaginal discharge typical of metritis, but after three doses of pituitrin this disappeared, and (December 1925) there has been no recurrence.

CASE 2.—This was in August 1925, in consultation with Mr. Lance Hayden, M.R.C.V.S., at Midsomer Norton, and the patient was a very great favourite fox terrier bitch, four years old, very distended, and already lethargic and in great discomfort. 1 c.c. of pituitrin was injected hypodermically, and in about ten minutes it was as if a flood had been let loose as the uterine horns emptied themselves with great activity. This discharge went on for about ten minutes, and the bitch became bright and lively, and ate voluntarily of a meal, whereas beforehand she had appeared very miserable and refused all food. She received two more injections at three-day intervals, and recovery was unin-

terrupted. It was necessary to inject pituitrin once again a month later, but since then there has been no relapse.

CASE 3.—In consultation with Mr. Clement Rix, M.R.C.V.S., to whom I am indebted for the clinical history. The patient was a Chow bitch, fourteen months old, brought to Mr. Rix on November 1, 1924, suffering from a fœtid purulent discharge from the vagina. She was in very poor condition and looked as if she would die.

Hypodermic injections of pituitrin were commenced on November 21st, and continued twice weekly for ten weeks. The amount at first was 1 c.c., and later it was increased to 1½ and 2 c.c. for each dose. The vaginal discharge ceased and the bitch improved in condition, becoming, indeed, normal and in good health.

On June 20th she again showed signs of vaginal discharge and metritis when in œstrum, the discharge being fœtid and prevalent in character. 2 c.c. of pituitrin were injected hypodermically on June 29th and on July 3rd.

On the 8th the discharge apparently ceased, and since then she has given no further cause for anxiety.

CASE 4.—Yorkshire terrier bitch, six years old, showing metritis discharge August 12, 1924. 1 c.c. of pituitrin injected twice weekly for three weeks. On September 15th the discharge ceased, and there has been no relapse.

FOREIGN BODY IN THE DUODENUM CAUSING PARTIAL OBSTRUCTION.

BY W. L. LITTLE, F.R.C.V.S.,
Reading.

A SMOOTH-COATED fox terrier dog puppy about four months old was said by his owner to be in pain and have jerky breathing.

When seen he was found to have hiccough rather badly, the spasms coming on about every ten minutes, and lasting from one to two minutes. He showed pain on manipulation of the anterior part of the abdomen, was very restless, appetite capricious. There was a raw place on his back just posterior to the scapulæ where he persisted in biting himself. There was no history of vomiting food. On one occasion he vomited a little bile-coloured liquid; his motions were said to be normal.

The owner informed us that he had been in the habit of eating bones, coal and small stones, so it was thought something of this nature might be the cause of the illness, and he was treated accordingly. After three days, as there was no improvement, he was destroyed at the owner's request.

On post-mortem examination he was found to be in very fair condition, there being the usual amount of abdominal fat. The duodenum was much dilated from the stomach for about three inches. The stomach was normal and contained about a tablespoonful of partly digested food; the wall of the duodenum was thickened, intensely inflamed, and contained a piece of clay ball—such as are used for heating by gas fires. Other organs appeared to be normal.

PORTION OF FIRE-CLAY BALL (Actual size).

The owner stated that about fourteen days previous to the illness the dog was seen crunching pieces of a fire ball, but it was thought he had not swallowed any, after which a fire-guard was placed to prevent him obtaining any more. When first noticed to be ill the owner gave a dose of castor oil, which probably helped the passage of this body into the bowel, where owing to its shape it caused only a partial obstruction.

The interesting points of this case are: no history of vomiting and the fact of the dog biting his back.

DEATH AS THE RESULT OF SWALLOWING A PENNY.

BY W. STANFORD HARRISON, M.R.C.V.S.,
Hertford.

A MEDIUM-SIZED fox terrier was observed to be ailing and my attendance was requested. I noticed a slight yellow discoloration of the skin and visible mucous membranes, and prescribed treatment for ordinary deranged liver, without beneficial results. The dog gradually became worse and extremely emaciated, the whole body assuming a deep orange-green tint, and died about the seventh day after my first visit.

The post-mortem examination demonstrated the almost complete obliteration of the biliary duct. In the stomach I found a penny-piece near the pylorus. It then occurred to the owner that nine or ten weeks previously he was tossing some coins on his lawn, when a penny (which was then *quite new* and bright) was missing. On its removal the inscription was nearly unreadable. Up to the time of my first visit there was entire absence of any signs of illness, or any symptoms of irritation or inconvenience. At the post-mortem the whole body was thoroughly impregnated with bile, of a greenish colour.

[NOTE.—A similar case was brought to hospital in Kensington

in December 1919. A retriever, which had had symptoms of violent thirst and sickness for a week, was treated for gastritis. The symptoms were gradually alleviated, and on the second day the dog passed two copper pennies in the fæces. These were firmly adherent (almost corroded) to one another and very darkly coloured. They had evidently been in the intestine for some time.

The dog eventually made a good recovery. The owner stated that the dog used to be given pennies which he took to a confectioner's shop in the neighbourhood and obtained buns in exchange.

Another interesting patient had a silver florin in the stomach on post-mortem examination. It had been swallowed two years before, and had made a sac for itself.—F. HOBDAY, Editor VETERINARY JOURNAL.]

AN INTERESTING TRACHEOTOMY.

By FREDERICK HOBDAY, and HAROLD STAINTON, F.R.C.V.S.,
Kensington, London.

THE patient, a Bedlington terrier, male, about two years old, was sent to hospital by Mr. W. S. King, M.B.E., M.R.C.V.S., about 9.30 p.m. on the 13th of October, suffering from a swelling about the size of a tangerine orange in the upper region of the throat, and dyspnœa in consequence.

The slightest exertion caused great distress, but when quiet the dog was quite cheerful. About midnight, however, the distress increased, and as it was not safe to leave him for the night tracheotomy was performed, a small human pattern of tube being inserted.

Relief was immediate. The tube was worn *in situ* for three days and then removed, the wound healing without any complications and the patient making a good recovery. The swelling had in the meantime proved to be an abscess, which was lanced and ultimately disappeared completely, without leaving any thickening or bad sequel.

SAND AS A CAUSE OF COLIC IN A DOG.

By PHILIP VINCENT, M.R.C.V.S.,
Hove.

On September 1st I was called in by a lady client to see an Aberdeen terrier dog which she told me had been playing ball on the sands with her children, and as he had never seen the sea before, he became very excited, and in picking up the ball he had swallowed a quantity of sand.

The dog was in considerable pain, the abdomen was distended, and painful on manipulation, no appetite, excessive thirst, obstinate constipation, and he had vomited several times. I ordered him a bismuth mixture every three hours, and nothing but a little lime water and milk to drink. The following morning the dog was in less pain and the vomition had ceased. I gave him Liq. paraffin ʒii., and three hours later a pill containing Hydrag. Subchor. grs. ii. ; three hours later I gave another dose of Liq. paraffin and an enema of glycerine and warm water. At six o'clock in the evening the dog passed about two teaspoonfuls of sand, and during the night he passed more sand. The next morning the dog was much better, and he commenced a diet of boiled fish, and it was not necessary for me to see him again.

SOME INSTANCES OF INOCULATION AGAINST RABIES.

By M. R. CHINGERI, G.B.V.C.,
C. and M. Station, Bangalore, India.

During my practice as a veterinary surgeon in charge of the Municipal Veterinary Hospital, Bangalore, I have treated up till now fifteen dogs, two cows, and "one calf of about four months" with anti-rabic vaccine of the Pasteur Institute of Coonoor within a period of fourteen months.

Of the eighteen animals inoculated, it was not possible, in eight cases, to ascertain the condition of the animals that inflicted the bite in each case, but in the remaining ten cases I saw the dogs that caused the wounds and they came under my personal observation. All of them showed clear symptoms of rabies, and were eventually destroyed. In most of these cases the bites were extensive, and spread over the face, and none of the animals were long-haired ones. It cannot therefore be said that the success of the inoculation was due to the prevailing theory, "The bites of all rabid dogs do not result in the disease, and also, to a certain extent, the long-haired dogs are protected in the like manner."

In the remaining eight cases, treated by me, I cannot positively

say that the animals were actually bitten by a rabid dog, as they did not come under my direct observation, but only on the reports of the owners. The inoculation with anti-rabic vaccine has proved successful, and not one of them has showed any signs of rabies up till now, and they are still under my observation.

In my opinion the anti-rabic inoculation is proving a great boon to the canine world, but it must be remembered that it is necessary to take very early precautions to secure the effective results from the inoculation treatment.

Abstracts of Current Literature

Jelinek and Prochazka.—Stuttgart Dog Disease.—*Prager Arch. für T.*, Part A, Nos. I and II, May, 1925.

THESE authors have been making investigations into canine typhus, and the following are their findings.

In twenty-seven cases out of twenty-eight examined, spirochetes were found in the kidneys of the affected subjects.

The cultivation of the spirochetes is possible under anaerobic conditions, but no pure cultures have yet been obtained.

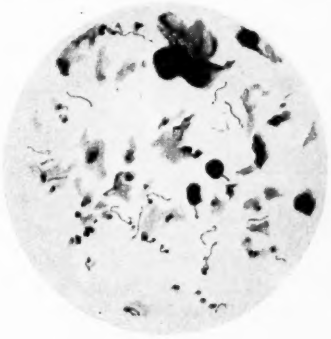

FIG. 1.

FIG. 2.

The staining of the spirochetes from the organs by Schmorls' giemsa stain after previous fixation of the parts with formalin is the only method which gives uniform good results (see illustrations).

The transmission of the disease to the dog is possible by intracardial, intraperitoneal, and oral application. We have only succeeded in transmitting the disease to the guinea-pig in a slight form, and the symptoms occasionally noticed were lack of appetite, thirst, emaciation, polyuria, and staring coat.

Correspondence

To the Editor of the VETERINARY JOURNAL.

DEAR SIR,—

Permit me to correct an error in the article in your December issue as to disclosure of the composition of stock remedies in South Africa. The South African Regulations are not so much aimed at remedies imported, but more particularly as at suggested worthless remedies put up in South Africa, and especially so-called remedies for epizootic diseases. Thousands of animals in South Africa would and do perish from ailments and injuries where stock remedies are not at hand, and where a veterinary surgeon is not available.

So much is this recognised that the South African Government have a department which is engaged in the manufacture of stock remedies. It seems to have been overlooked by the writer of your notes that there is no more possibility of skilled diagnoses in the treatment of animals, where such Government preparations are used, than with stock remedies imported.

I agree that sale of worthless preparations should be stopped, but the effect of the Regulations will be to punish the agriculturalists to a far greater extent than the animal medicine maker, and probably extend the life of worthless preparations, whilst depriving the farmer of useful first aid treatment.

Yours faithfully,

LAWRENCE C. TIPPER. M.R.C.V.S.

" Ribbesford," Wake Green Road,
Moseley,
Birmingham,
December 16, 1925.

Personal

CONGRATULATIONS to Dr. Maurice C. Hall, Senior Zoologist in the Zoological Division of the Bureau of Animal Industry of the United States of America, on his appointment as its Chief in succession to Dr. Ransome, who died suddenly in September last. Dr. Hall has had a very distinguished veterinary career, and his name is as well known in Great Britain and the Continent of Europe as a parasitologist as it is in America, not only amongst veterinary practitioners, but also amongst those of human medicine as well. It was he who first, by his experimental work, made possible the present successful combined tetrachloride treatment for hook-worm disease of man and animals; and his observations on the intestinal parasites of the dog have been read and acted upon by veterinarians of all countries.

In the prime of life Dr. Hall's prospects of doing good work in the future are as brilliant as they have been in the past, and we may be sure that his name will come before us in veterinary literature many times during the next few years.